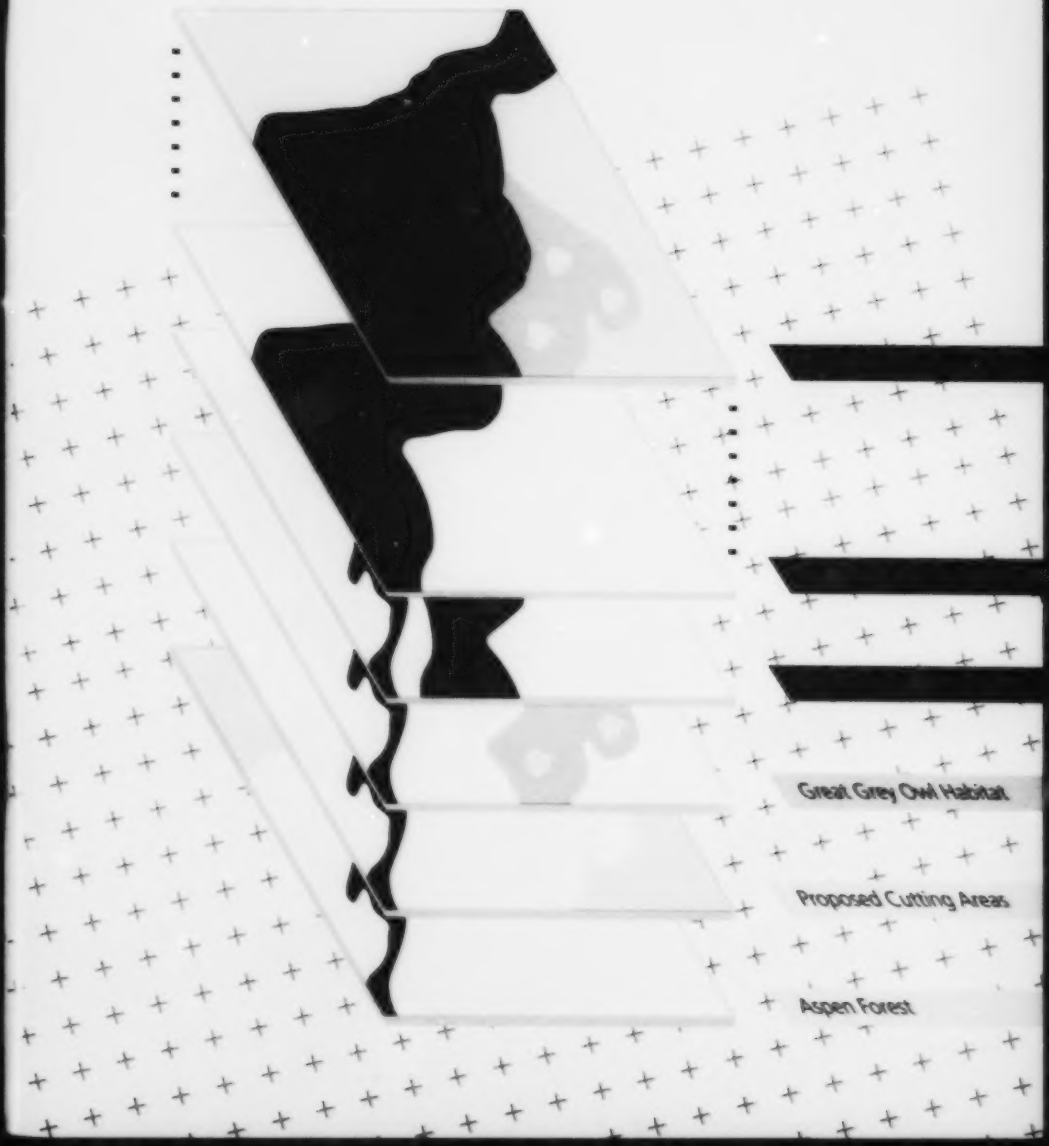
FIVE YEAR REPORT ON THE STATUS OF FORESTRY

Manitoba
Natural Resources
Forestry

Volume 1: Report



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FIVE YEAR REPORT ON THE STATUS OF FORESTRY VOLUME 1 For the Year Ending March 31, 1991

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To The Honourable Harry J. Enns
Minister
Natural Resources

Sir:

I am pleased to present the second *Five-Year Report on the Status of Forestry to the Legislature*.

It includes all aspects of the administration of the *Forest Act* by Natural Resources for the period ending March 31, 1991. It contains a review of the status of forest resources and an assessment of forestry management programs.

Umendra Mital
Deputy Minister
Natural Resources

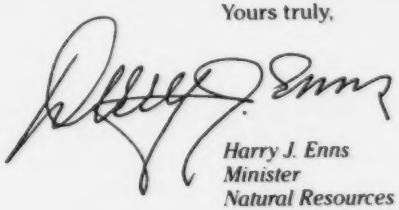
To His Honour
The Honourable Dr. George Johnson
Lieutenant Governor of the Province of Manitoba

Your Honour:

It is with great pleasure that I present to you the second *Five-Year Report on the Status of Forestry to the Legislature*.

This Report includes all aspects of the administration of the *Forest Act* by Natural Resources for the period ending March 31, 1991.

Yours truly,



Harry J. Enns
Minister
Natural Resources

Five-Year Report On The Status Of Forestry

INTRODUCTION:

This is the second Five-Year Report On The Status Of Forestry presented to the Province of Manitoba. The first Five-Year Report covered the period between April, 1981 to March 1986. This report contains responsibilities of the Forestry Branch, its mandate relative to the Manitoba Forest Management Plan 1981-2000, and reports activities occurring between April 1986 and March 1991.

This report is a review of the status of Manitoba's forest resource. It examines forest management programs, and analyzes their effectiveness. Trends in forestry product demands are outlined, and the forest resource capability in meeting these demands is evaluated.

Significant Events

Partnership Initiatives

The *Five-Year Report on the Status of Forestry* for the year ending March 31, 1986 discussed forestry initiatives channelled through three delivery mechanisms aimed at enhancing forest management activity in Manitoba. The impetus for these initiatives was the Manitoba Forest Management Plan 1981-2000, which identified the need for a $50 million increase in forest management expenditures during the first five years of the plan. The plan indicated that failure to take action would necessitate about a 7% annual decrease in the softwood annual allowable cut (AAC) as softwood timber supplies declined. The forest industry in Manitoba and social economic benefits derived from it would, in all likelihood, decline at a similar rate.

The first delivery mechanism comprised industry-provincial agreements to carry out forest management and renewal. Over the five-year period, expenditures amounted to approximately $6.9 million. Although these activities began during the first five-year reporting period, they continued into the period covered by this report. Contributions to industry-managed forest renewal funds increased, and there was a correlating increase in forest renewal activity.

The second delivery mechanism was the Forestry Development Program. As one of the top nine sectors in the provincial economy, the forest industry received almost $16 million for a Forestry Sectoral Program. This program paralleled and enhanced the four programs of the Canada-Manitoba Forest Renewal Agreement. The Manitoba Jobs Fund financed the provincial funding stream, together with 50% of the cost-shared funding of the federal-provincial agreement and the Forestry Development Program, for a total of $29.5 million.

The third delivery mechanism was the Canada-Manitoba Forest Renewal Agreement which consisted of three funding streams: $11.9 million for each of the federal and provincial direct funding streams plus a $3.3 million 50/50 cost-shared component. The Canada-Manitoba Forest Renewal Agreement (1984-1989) initiated major forest management activities based on recommendations in the Manitoba Forest Management Plan, 1981-2000.

These three delivery mechanisms had an immediate impact on silviculture and forest renewal. In 1987, about 13.4 million seedlings had been planted, an increase of 30% from the previous year. From 1986 to 1987, the total area regenerated increased by 40%. When the Canada-Manitoba Forest Renewal Agreement ended on March 31, 1989, total planting on provincial Crown lands by the Forestry Branch, Abitibi-Price Inc. and Repap Manitoba had reached 66 million seedlings.

Similarly, forest stand tending programs initiated under these partnership initiatives achieved expected yields in both diameter and height growth within two to three years following treatment. Thinned jack pine and black spruce stands yielded 30% to 50% growth increases, due to the release from competition in overstocked young stands.

FORIST, the branch's Geographic Information System, continues to be a highly valuable tool in provincial forest inventory and management. This program, initiated under the Canada-Manitoba Forest Renewal Agreement, resulted in entry of over 1,900 map sheets (townships) of forest cover and other related data into the computer library, equivalent to detailed information for 183,350 km^2 of the most active forest areas of the province.

Although the Canada-Manitoba Forest Renewal Agreement ended on March 31, 1989, Manitoba continued to provide funding at a level equivalent to all Manitoba contributions (including the Forestry Development Program funding) during the final year of the Agreement, in expectation that a new federal-provincial agreement would be signed. During the period between the federal-provincial agreements, Forestry Canada provided $427,000 for cost-shared forest renewal activities in the province. On March 24, 1991 the Canada-Manitoba Partnership Agreement in Forestry was signed and was made retroactive to April 1, 1990.

New Era of Cost-Shared Cooperation

The close of the 1990-1991 fiscal year marked another milestone in cooperative forestry programming between Manitoba Natural Resources, Forestry Branch and Forestry Canada with the signing of a new five-year partnership agreement in forestry. The $30 million agreement is cost-shared on a 50/50 basis from April 1st, 1990 to March 31st, 1995. The Canada-Manitoba Partnership Agreement in Forestry builds on the achievements of the 1984-1989 Canada-Manitoba Forest Renewal Agreement. It reflects the economic strength and diversity the forestry sector contributes within a sustainable development context, recognizing the many values inherent in forest ecosystems. The agreement places significant emphasis on both sustainable development and integrated forest resource management. The agreement comprises three programs: reforestation and wood supply enhancement; applied research, marketing and technology transfer; and public information education and agreement support. These programs are managed by an Agreement Management Committee, and are implemented by Forestry Canada and Manitoba Natural Resources, Forestry Branch.

Forest Protection

The most severe wildfire losses in Manitoba's recorded history occurred in 1989. Over 1,200 wildfires were reported throughout the province, about 500 of which were man-caused and about 700 caused by lightning. The area burned totalled 3.6 million hectares (ha), 2.6 million ha of those located in Manitoba's Forest Zone. The

merchantable volume loss totalled over 75 million m^3, 68 million m^3 of those located in Manitoba's Forest Zone. Of 65 Forest Management Units, 24 were adversely affected to the point of requiring a review and possible recalculation aimed at revising AAC levels. The severity of wildfire loss becomes clear when the 68 million m^3 lost within the forest zone in 1989 alone is compared to Manitoba's most recent five-year average annual harvest volume of 1.7 million m^3.

Company Forest Management Agreements

On March 10, 1989, Manitoba entered into a Share Purchase Agreement with Repap Pulp and Paper Inc. for the purchase of the Manfor plant at The Pas. Subsequently, on May 4, 1989, a Forest Management Licence Agreement for Forest Management Licence Area Number 2 was signed between Manitoba and Repap Pulp and Paper Inc. This licence agreement defined the wood supply area, and outlined forest management and renewal responsibilities. The licence also provided the framework to explore new uses and market potential of small-dimension mature softwood and hardwood trees where few opportunities previously existed.

Industry Developments

Interest in private land forest management by landowners on Manitoba's agricultural landbase has been increasing noticeably since 1988. Personnel were assigned to investigate this more fully, and to assess the desirability of certain forest management information or guidance from the point of view of private landowners.

Surveys indicated a majority of forest land owners felt not enough information was available regarding woodlot management opportunities, and that an information program would be desirable. Interest in the program has increased such that in 1990, 54 on-site farm woodlot information visits were made, six public farm woodlot interest meetings were hosted by the Forestry Branch at public request, and personnel participated in five more public meetings as guest speakers.

A survey of 1,100 landowners in four widely-separated municipalities resulted in publication of *A Survey of Land Owners in Manitoba Regarding Establishment of Private Land Forestry Management Programs* in co-operation with the Rural Development Institute of Brandon University. Interest continues to expand in this aspect of forest management.

Palliser Furniture Ltd. expanded its industrial complex in Winnipeg with the installation of a particleboard plant. The expanded plant manufactures wood panels using aspen and jack pine primarily from the southeastern and southern portions of the Eastern and Interlake Regions. Particleboard production at the plant came onstream in 1990. The original wood requirements were met primarily through purchase agreements with only small volumes initially from company timber sale areas.

Legislation and Policy

A number of changes were made to The Forest Act, Regulations and other statutes bearing on forest management and forestry activities in Manitoba. On March 14th, 1990, The Forest Act was amended to ensure forest regeneration on harvested lands, either through forest renewal activities by the holder of the timber cutting right or through the payment of a forest renewal charge to the Forestry Branch (which would carry out that renewal on the timber harvesters' behalf). A regulation, subsequently approved, designated the amount to be assessed as the forest renewal charge.

From 1986 to 1991, the number of provincial forests increased. Most notable were establishment of the Swan-Pelican Provincial Forest in the Mountain Forest Section (Western Region of Manitoba), of the Moose Creek Provincial Forest in the Interlake Forest Section and of the Wampum Provincial Forest in the Pineland Forest Section (Southeastern Region).

The new Manitoba Environment Act was enacted and assented to during the reporting period. This act identifies most forest management activities as Class Two developments which must undergo environmental review and licensing. Class Two forest developments identified for review include the five-year forest management plans of the two large companies, Abitibi-Price Inc. and Repap Manitoba, and plans developed by the Forestry Branch for forest management units under its direct management and supervision. Environmental impact assessment studies have been initiated for both the aforementioned companies, and environmental hearings are anticipated during the next five-year report period.

During this review period, the white spruce was proposed and accepted as the province's official tree. It is anticipated that Royal Assent will be given to the inclusion of this tree species in the Coat of Arms and Emblems Act.

Policy initiatives during the past five years included the completion of the timber quota system review. One of the most important recommendations was the provision to split hardwood from softwood quotas into smaller portions of 1,000 m^3 each. These smaller quotas are more financially attractive for persons wishing to enter the forest industry via the quota system. Smaller quotas also allowed those not using both softwoods and hardwoods to divest themselves of one quota.

Another important change to the timber quota system relates to the utilization formula. Quota utilization will be considered to have occurred if the total volume harvested was 60% (or more) of the total five-year volume. The previous standard was set at 80%. The new limit, to be implemented from 1990 to 2000, better reflects cyclic market trends for most forest products.

Another significant policy initiative was release of the Sustainable Development, Land and Water Strategy Workbook on Forests. This workbook, designed in 1989, was released in early 1990 to the public. Following its release, a series of consultative workshops was conducted to solicit public input aimed at revising the eight draft objectives and related policies. Information from the meetings and the mail-in portion of the workbook will be used to formulate policies for review through the legislative process. These objectives and policies will ultimately form the framework for forest programming and related activities by the Forestry Branch. The policies will also form the basis for amendments to The Forest Act. It is anticipated the revised objectives and policies will be incorporated in a second booklet titled *What You Told Us* to be released during the 1991-1992 fiscal year.

Forestry Branch Organization

The Forestry Branch is structured to deliver programs essential to sound forest management. During the five-year period under review, the organization of the Forestry Branch remained relatively unchanged, apart from creation of a Forest Operations Section managed by a Chief of Forest Operations. This section is responsible for directing the activities of the Administration, Branch Services and Timber Sales programs. Four regional foresters and their support staff report to the chief. Changes to the organization included the establishment of regional positions at Roblin and Niverville; realignment of responsibilities within the regional structure, and establishment of a private woodlot/farm forest program together with reassignment of several staff persons to administer woodlot/farm forest activity.

Roles and Objectives of the Forestry Branch

The Forestry Branch, established under Section IV of The Forest Act, falls under the jurisdiction of the Minister of Natural Resources. The branch is responsible for administering The Forest Act and the Dutch Elm Disease Act. The branch is the

principal source of forestry expertise in Manitoba, its general objective being to promote the sustainable management and use of provincial forest resources for the economic, social and environmental benefit of Manitobans.

The Forestry Branch comprises four main operating sections, each responsible for specific activities and duties related to branch operations and forest resource management. **Forest Operations** administers personnel, budgetary and equipment needs. Forest operations also provide information services for the branch, oversees regional activities, and issues timber sales agreements, licenses and permits for harvesting Crown timber. Five regional offices handle on-site management and implementation of forestry programs and projects.

Forest Management maintains an up-to-date inventory of forest resources and management activities. This section is also responsible for private land forestry and industrial forestry development. It provides government input on national and interprovincial issues, lumber countervailing actions initiated by the United States being one example.

Forest Protection develops and implements programs aimed at managing major forest insect and disease pests below economic thresholds. This section coordinates all activities associated with the control of Dutch Elm Disease in municipalities, including the City of Winnipeg. It also provides planning input and develops initiatives in wildfire management and control.

Silviculture directs the provincial planning, development and implementation of forest renewal and stand tending programs. Operation of both provincial forest nurseries falls within Silviculture's jurisdiction.

The Forestry Branch plays a significant role in the province's economic development. At the community level, the branch supports and promotes forest harvesting, and assists manufacturing operations through long-term planning and forest management efforts. Providing adequate forest cover for recreation and wildlife habitat, and providing timber supplies to meet subsistence and domestic needs are among the roles the branch plays in achieving integrated forest management goals. Branch responsibilities have been set down by Manitoba Natural Resources in a series of roles as follows:

1. to ensure Crown-owned forests are properly managed so as to provide an adequate resource base for existing and future harvest operations, as well as adequate forest cover for other uses;
2. to prevent widespread tree mortality and timber loss by providing a level of forest protection commensurate with the value at risk;
3. to manage and allocate forest resources for the long-term social and economic benefit of Manitobans;
4. to ensure that all forest harvesting operations are carried out so as to minimize losses and environmental damage;
5. to allow other resource opportunities within designated forestry lands, so long as such opportunities complement and do not conflict with, existing or future forest harvesting operations, and
6. to work cooperatively with other branches, departments, outside agencies and forest users in planning and managing forestry programs.

These branch roles form the basis of a series of economic and social objectives as follows:

1. to ensure and promote forest activities that are environmentally sound and maintain the environmental integrity of the forest ecosystem;
2. to supply and allocate forest resources on a sustainable basis which balances environmental, social, and economic benefits and opportunities to Manitobans;

3. to protect human life, property, employment opportunities and valuable forest resources;
4. to promote an integrated and diversified economy which includes an efficient and environmentally sound use of forest resources;
5. to foster and promote increased development and management of woodlots and shelterbelts for commercial and conservation purposes on private and Crown lands in the agricultural zone of Manitoba;
6. to foster and promote establishment and protection of urban forests;
7. 1) to ensure plans are prepared and implemented for Manitoba's forest and that these plans recognize the interests and concerns of all forest users and the needs and characteristics of the forest ecosystem;
   2) to improve the quality of information used in planning, decision making and integrated forest management;
8. to improve understanding of the inter-relationships between the global environment, the forest ecosystem and the economy to enhance informed decision making.

Manitoba Forest Management Plan, 1981-2000

On December 31, 1981 the Forestry Branch and Forestal International, a forestry consulting firm, completed a 20-year forest management plan for Manitoba. This plan was funded jointly by the Canada and Manitoba governments under the Western Northlands Subsidiary Agreement.

The plan is a prescription for sound management of the province's forest resources to the year 2000. It is a blueprint for forest use, industrial development, road access, sophisticated forest monitoring, improved fire and forest pest management, forest renewal and developing stand tending programs.

Integral to the Manitoba Forest Management Plan, 1981-2000 are five-year assessments on the status of the forest resource. On August 14th, 1983, Bill 45 was passed requiring the Minister of Natural Resources to present the Legislature with a five-year report on the status of forestry.

The five-year report must review the effectiveness of forestry programs, analyze trends including demand for the forest resource, and evaluate the resource's capability of meeting those anticipated demands. This report satisfies the reporting requirement for the second five-year period ending March 31, 1991.

FOREST OPERATIONS

Administration

Branch Administration provides a system of financial control and accountability to meet statutory and regulatory requirements. It provides general administrative support services including material and records management, building maintenance, secretarial/office services and vehicle fleet management. Administration coordinates branch budget expenditures of over $14 million (Chart 1). It also oversees all personnel and payroll matters for 78 permanent staff members, 15 term positions and varying numbers of departmentals (seasonal/non-seasonal). (See Chart 2).

CHART 1
BRANCH BUDGET
(IN $000*)

SECTION	SALARY	OTHER EXPENDITURES	TOTAL
Administration	220.4	39.4	259.8
Forest Management	805.2	155.6	960.8
Silviculture	251.9	452.5	704.4
Forest Protection	786.5	1,719.7	2,506.2
Forest Operations	1,076.4	265.6	1,342.0
Forest Regeneration	500.7	1,586.2	2,086.9
Forest Development	358.8	1,989.3	2,348.1
Forest Renewal	41.3	2,906.3	2,947.6
	4,041.2	9,114.6	13,155.8
Ongoing Capital			25.0
		Total Branch Budget	13,180.8

*1990-1991

The Canada-Manitoba Forest Renewal Agreement contributed additional federal and provincial government funding. Statistical data, monthly and quarterly reports and cash flows required on all projects were handled by Adminstration.

In addition to assisting in branch policy development, this section ensures management of provincial Crown forest lands conforms to The Forest Act and Regulations. Changes to The Forest Act and Regulations, including development of new provincial forests are also handled by Administration.

CHART 2
BRANCH STAFF NUMBERS*

SECTION	PERMANENT	DEPARTMENTAL	TERM	PROFESSIONAL	TECHNICAL	SUPPORT
Administration	2.0	0.0	0.0	1.0	0.0	1.0
Forest Management	20.0	2.0	0.0	6.0	13.0	3.0
Silviculture	6.0	0.0	0.0	3.0	2.0	1.0
Forest Protection	13.0	11.03**	.26	5.0	17.03	2.26
Forest Operations	29.0	0.0	1.0	8.0	10.0	12.0
Forest Regeneration	9.0	4.0	.41	2.0	11.0	.41
Forest Development	0.0	0.0	11.0	3.0	8.0	0.0
Forest Renewal	0.0	0.0	1.0	1.0	0.0	0.0
Total	**79.0**	**17.03**	**13.67**	**29.0**	**61.03**	**19.67**
		109.7			**109.7**	

* As of March 31, 1991.
** The figure to the right of the decimal refers to the number of weeks, i.e. 11.03 = eleven full staff years and three staff weeks.

FOREST MANAGEMENT

Forest Inventory

Manitoba ranks fifth relative to other Canadian provinces and territories in terms of forest area and merchantable volume of timber; this ranking is unchanged from the previous five-year period. A breakdown of Manitoba's landbase is shown in Figure 1.

For forest classification purposes, Manitoba has been subdivided into two major areas — the Tundra Transition Zone and the Forest Zone. The Tundra Transition Zone covers about 228,500 km^2, occupying the northern 35% of the province. This zone offers minimal commercial forestry possibilities within acceptable forest rotation ages; however, the forest offers valuable protective cover for the land and provides for the subsistence needs of area residents. The Forest Zone covers about 387,000 km^2, occupying the southern 65% of the province. This zone contains all productive forest land, as well as Manitoba's agricultural land base.

For forest management purposes the Forest Zone has been subdivided into 65 Forest Management Units, which aggregate into 10 Forest Sections (Figure 2). The Forest Zone comprises a total area of 38.7 million ha (see Volume 2). Thirty-eight percent, or 14.8 million ha is considered to be productive forest, providing the wood volumes for harvest on a sustained yield basis. Relative availability of wood volumes from productive forest land is a critical component of forest management decision making. Managed species which make up the Forest Zone are indicated in Figures 3 and 4.

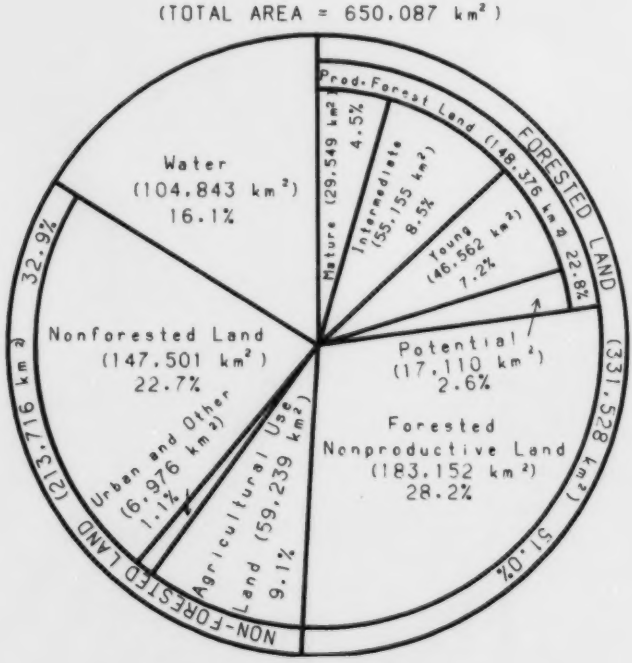

(TOTAL AREA = 650,087 km²)
FORESTED LAND (331,528 km²) 51.0%
NON-FORESTED LAND (213,716 km²) 32.9%
Prod. Forest Land (148,376 km²) 22.8%
Mature (29,549 km²) 4.5%
Intermediate (55,155 km²) 8.5%
Young (46,562 km²) 7.2%
Potential (17,110 km²) 2.6%
Forested Nonproductive Land (183,152 km²) 28.2%
Water (104,843 km²) 16.1%
Nonforested Land (147,501 km²) 22.7%
Agricultural Use Land (59,239 km²) 9.1%
Urban and Other (6,976 km²) 1.1%

Figure 1: Manitoba Landbase Broken Down by Productivity.

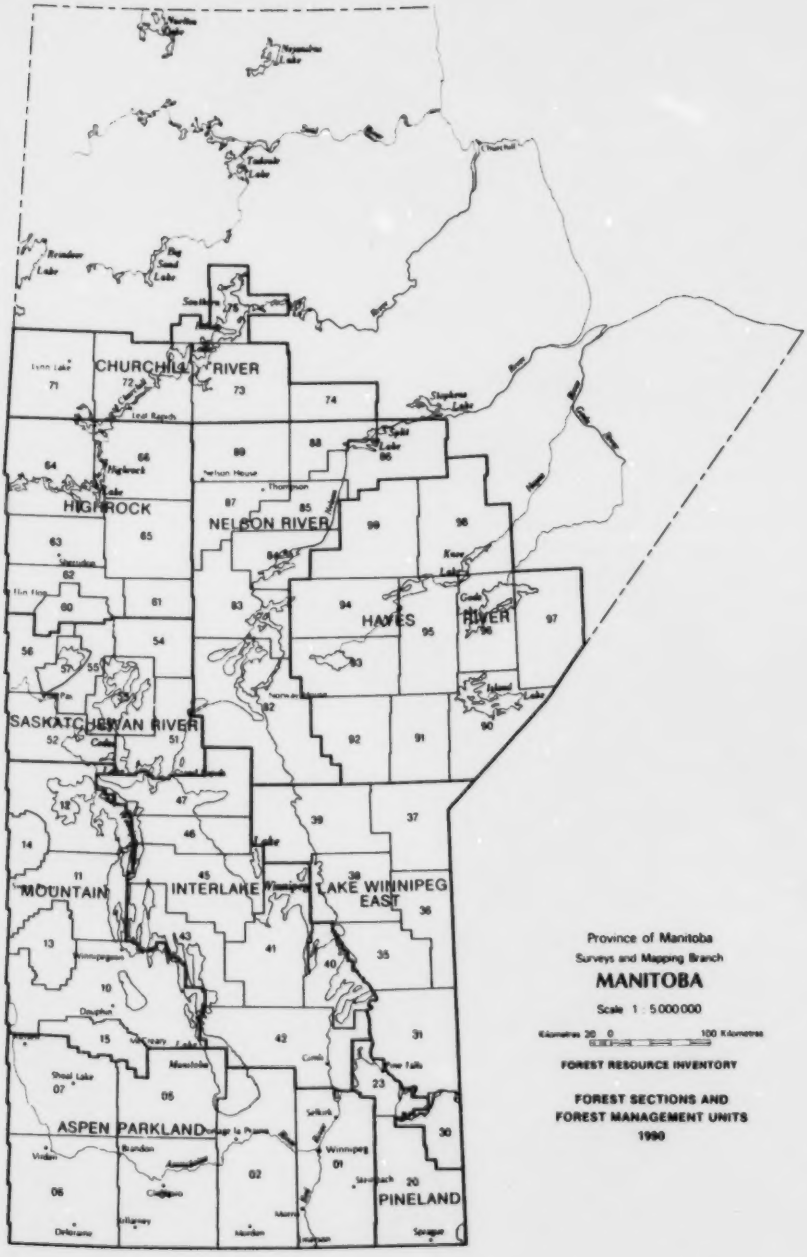
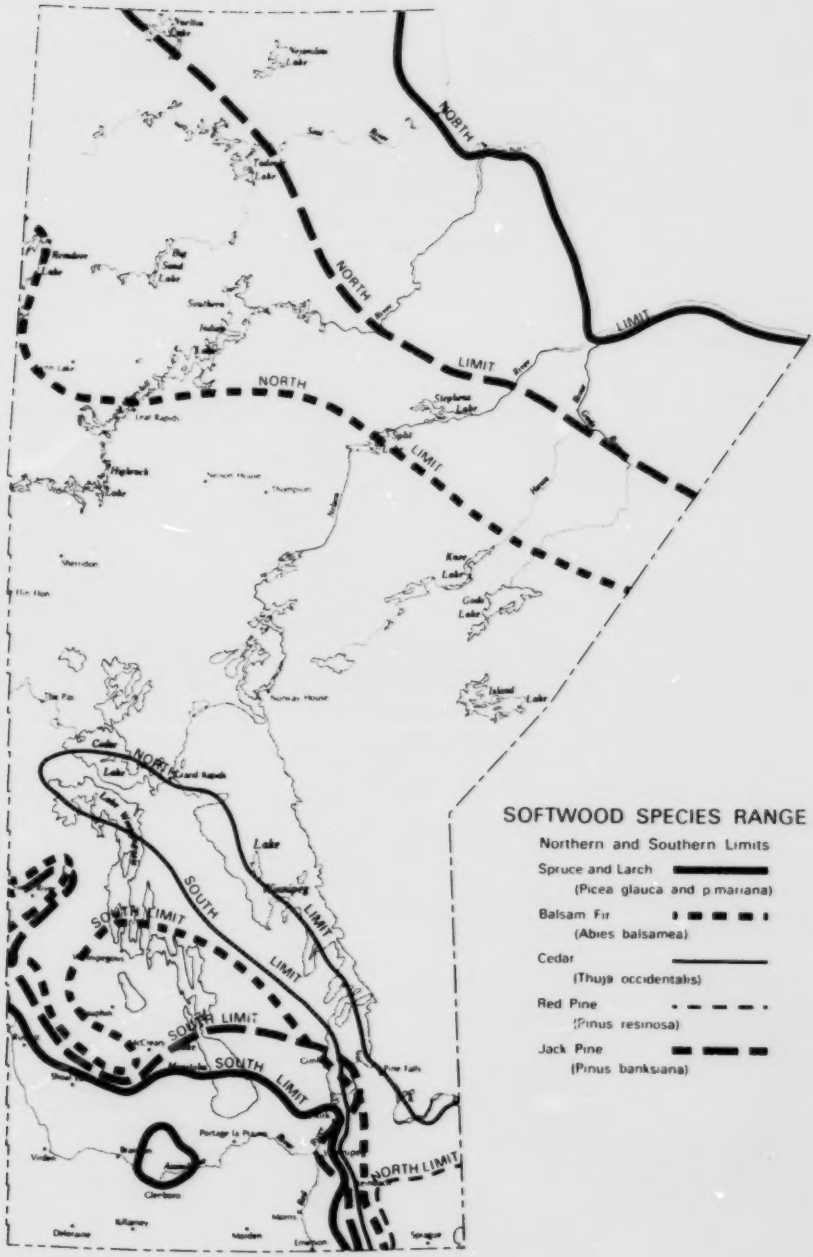


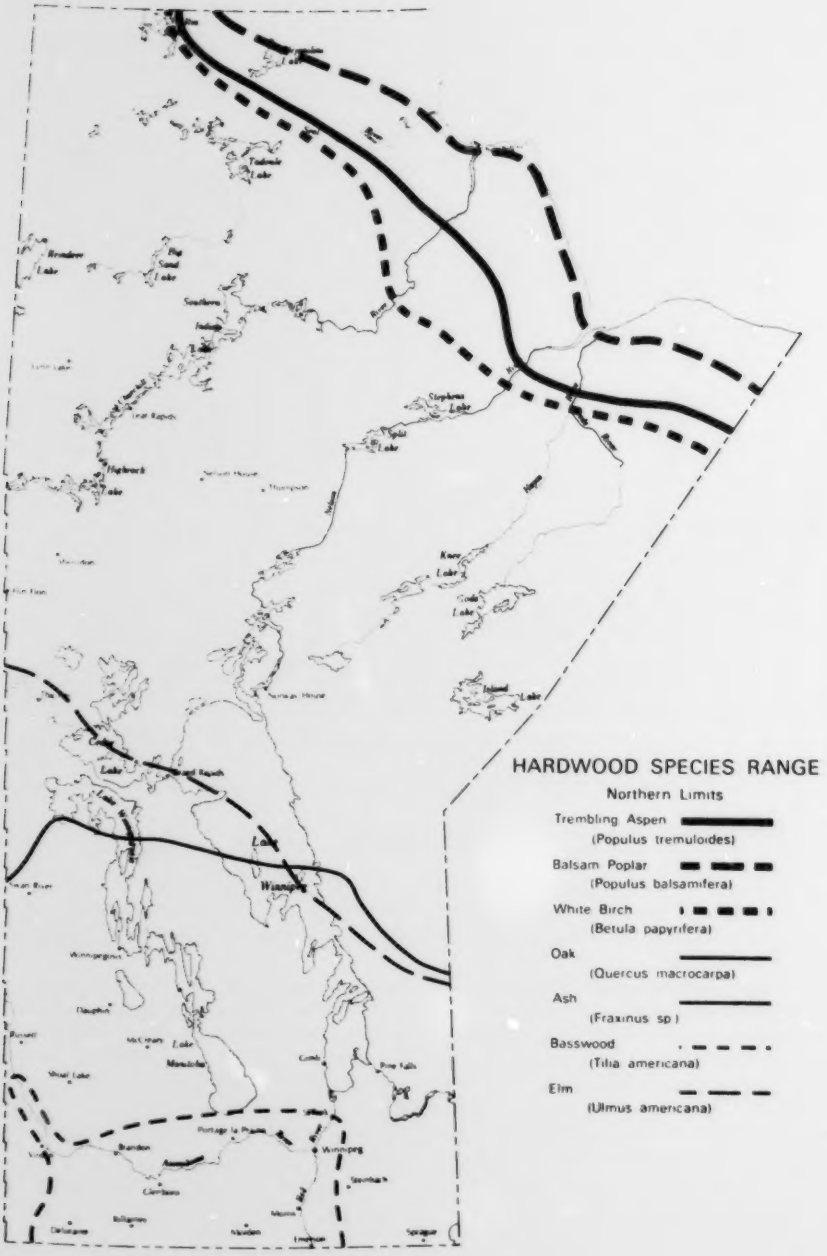
Figure 2: Forest Sections and Management Units.



Cartography by Surveys and Mapping Branch, Manitoba

MAN 730A © Province of Manitoba 1980

Figure 3: Softwood Species Range.



Cartography Branch, Manitoba

MAN 7308 © Province of Manitoba 1980

Figure 4: Hardwood Species Range.

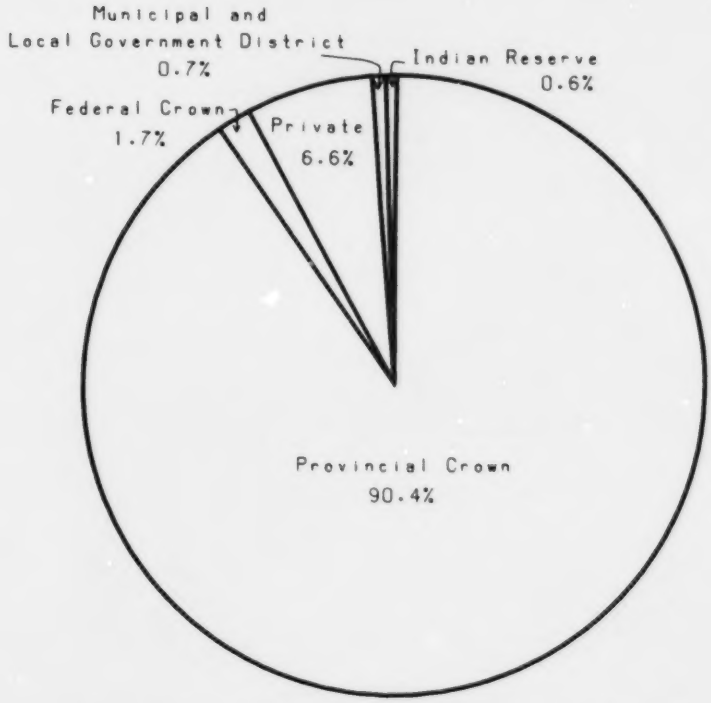


Figure 5: Manitoba Forest Zone — Productive Land by Ownership.

Productive Forest Land Area

Over 90% of the total productive forest land is owned and managed by the province. (Figure 5). Of the remainder, approximately 7% is owned privately, and the rest is located on federal Crown, municipal, local government district and Indian Reserve lands.

Approximately 96% of provincially owned productive forest land is considered open to harvesting activities (Figure 6). In 1986, the total productive area closed to harvesting was 332,150 ha. By 1991, the productive forest area closed to harvesting increased to 439,300 ha. All reductions in productive land open to harvest during this five-year period have occurred in the forest sections with established forest industries. The impact of the decrease is significant when forest sections without established forest industries are removed from the calculation. The total productive forest area open to harvesting is close to 13 million ha.

At the time of inventory update, 1.6 million ha of provincial Crown productive forest land was classified as having potential (capable of supporting trees but with no identifiable established forest cover visible on air photos). The 7% increase in "potential forest" (1.5 million ha in 1986) is primarily attributable to loss of young forest cover to major wildfires where seed sources were not present.

The productive forest land area of the Forest Zone was classified based on current forest cover or original/expected forest cover in the case of potential areas (Figure

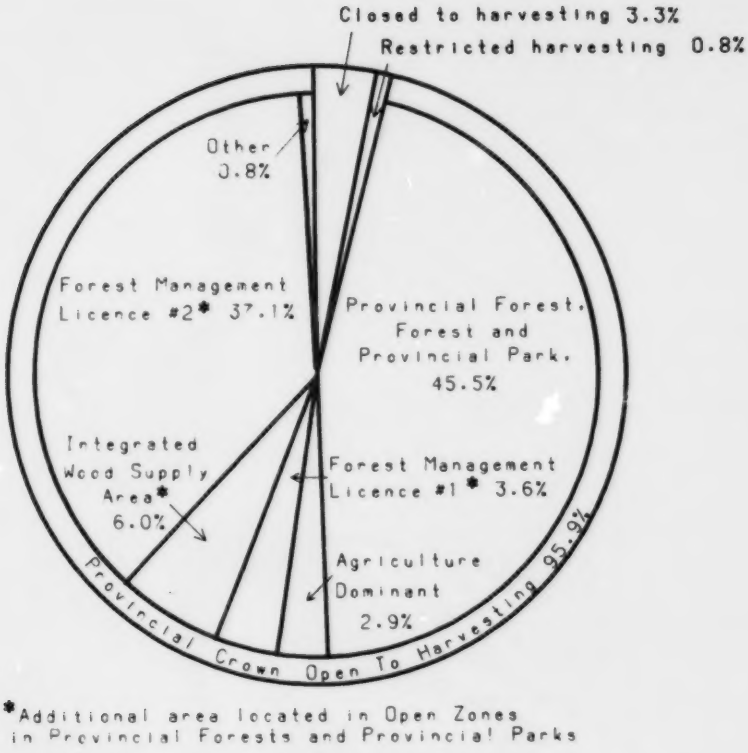

Closed to harvesting 3.3%
Restricted harvesting 0.8%
Other 0.8%
Forest Management Licence #2* 37.1%
Provincial Forest, Forest and Provincial Park, 45.5%
Integrated Wood Supply Area* 6.0%
Forest Management Licence #1* 3.6%
Agriculture Dominant 2.9%
Provincial Crown Open To Harvesting 95.9%
*Additional area located in Open Zones in Provincial Forests and Provincial Parks

Figure 6: Manitoba Forest Zone — Provincial Crown Productive Forest Land.

7). The black spruce cover type predominates on 39%, jack pine on 33%, trembling aspen on 23% and white spruce on 2% of the productive land area.

Merchantable Volume

The total merchantable volume found in the province's Forest Zone is estimated to be almost 750 million m^3 (Table 1). This figure is based on a minimum tree diameter of nine centimetres measured 1.3 metres from the ground, a minimum top diameter of 7.6 centimetres and a stump height of 30 centimetres.

Softwood (coniferous) species make up 63% of the total merchantable volume, while hardwood (deciduous) species make up the remaining 37%. Provincial Crown land supports 86% of the total volume, 81% of that in the Open Zone.

Black spruce provides 31% of the total wood volume in the province, followed by trembling aspen at 27% and jack pine with 22% (Figure 8).

On average, 87% of the softwoods and 69% of the hardwoods in the Forest Zone have diameters less than 26 centimetres. Sawmill technology can process trees over 19 centimetres in diameter into lumber. The remaining 66% of the softwoods and 41% of the hardwoods smaller than this standard dictate the type of industry Manitoba's forests can support. Mature trees of small diameter must be acceptable as raw material for the final product.

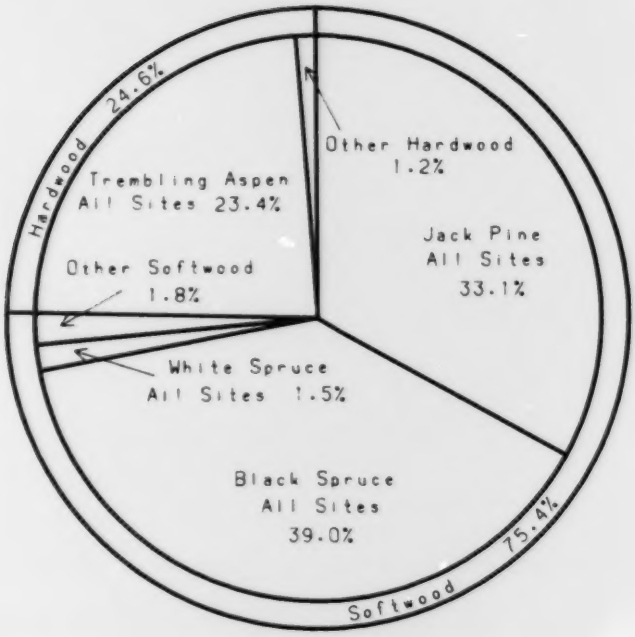


Figure 7: Productive Area Summary by Working Groups — Manitoba's Forest Zone.

Both productive forest area and merchantable wood volume on a portion of the private land in Manitoba have been updated by surveys over the past five years. Over 55% of the private productive forest area of 982,000 ha and 58% of the total private wood volume of 56.7 million m^3 is located in the Aspen Parkland Forest Section. Hardwood species make up 92% of the merchantable volume on private land.

Over 98% of the federal productive forest land area of 246,830 ha and 99% of the total federal wood volume of 36.4 million m^3 is located in Riding Mountain National Park in the Mountain Forest Section. Hardwood species make up 71% of the merchantable volume on federal land.

The Indian Reserve Land area of 209,000 ha is distributed throughout Manitoba's Forest Zone. Over 42%, or 89,000 ha, of the Indian Reserve Land area consists of productive forest land. Hardwood species make up 59% of the merchantable volume on Indian Reserves.

TABLE 1
MANITOBA FOREST ZONE
MERCHANTABLE VOLUME SUMMARY

(Volume in cubic metres)

	SOFTWOOD	HARDWOOD	TOTAL	PERCENT	PERCENT
PROVINCIAL CLOSED	18,857,730	8,193,840	27,051,570		4%
PROVINCIAL OPEN					
PROV. FOREST, FOREST, & PARK	170,815,700	46,954,510	217,770,210	36%	29%
F.M.L. #1	19,420,170	6,387,540	25,807,710	4%	3%
I.W.S.A. #1 & #2	28,865,280	15,441,070	44,306,350	7%	6%
F.M.L. #2 BLK. 1 & 2	210,460,890	96,295,350	306,756,240	50%	41%
INTERNATIONAL NICKEL	3,059,090	925,800	3,984,890	1%	1%
COMMUNITY PASTURE *	49,480	1,694,140	1,743,620	0%	0%
AGRICULTURE	1,807,600	9,398,180	11,205,780	2%	1%
SUB-TOTAL OPEN	434,478,210	177,096,590	611,574,800	100%	82%
PROVINCIAL RESTRICTED	4,450,440	3,142,000	7,592,440		1%
SUB-TOTAL PROVINCIAL	457,786,380	188,432,430	646,218,810		86%
FEDERAL	10,682,610	25,706,710	36,389,320		5%
MUNICIPAL	57,870	40,570	98,440		0%
PRIVATE	4,566,920	52,920,420	57,487,340		8%
LOCAL GOVERNMENT DISTRICT	636,310	3,485,390	4,121,700		1%
INDIAN RESERVE	2,102,020	2,989,710	5,091,730		1%
TOTAL FOREST ZONE	475,832,110	273,575,230	749,407,340		100%
PERCENT	63%	37%	100%		

* COMMUNITY PASTURE CLASSIFICATION IS BEING RE CLASSIFIED TO AGRICULTURE

Annual Allowable Harvest

Annual allowable harvest volumes, referred to hereinafter as Annual Allowable Cut (AAC), are calculated for each Forest Management Unit on a sustained yield basis. Calculation of the AAC ensures a continuous supply of timber volume to support established or potential forest industries in the province.

The current AAC from provincial Crown lands - Open Zone is about 8.3 million m^3 per year, 6 million m^3 of which are softwood and 2.3 million m^3 of which are hardwood species (Tables 2 and 3).

The Hayes River Forest Section accounts for the largest percentage of AAC with 23% of the available harvest volume from provincial Crown land. This forest section is currently inaccessible to forest operations, supporting only local subsistence requirements. The Aspen Parkland Forest Section provides the smallest percentage 1% of the available AAC from provincial land, as most of the available wood volume in this section is on private land.

Black spruce and jack pine make up 62% of the total provincial Crown land Open Zone AAC, followed by trembling aspen which makes up a further 22% of the total available harvest volume.

Forest inventory programs in the past five years have provided new information for 23 Forest Management Units in four forest sections. Results indicate the AAC for Manitoba's Open Zone has shown an overall 0.7% decrease to 8.26 million m^3 per year (Table 3), down from 8.32 million in 1986. The AAC is expected to drop further when specific impacts of the 1989 wildfire year on additional forest management units are determined.

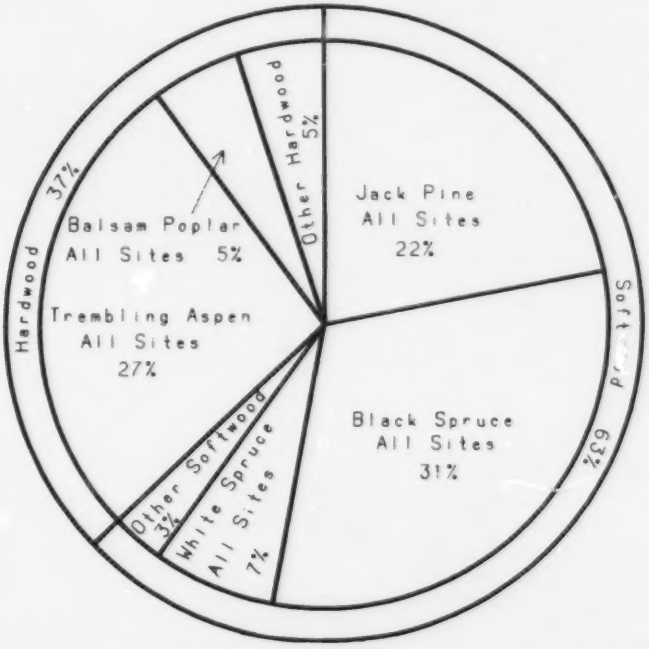


Table 8: Volume Summary by Working Group — Manitoba's Forest Zone.

TABLE 2

MANITOBA ANNUAL ALLOWABLE HARVEST BY SPECIES WORKING GROUP PROVICIAL CROWN LAND - OPEN

(Volume in thousands of cubic metres per year)

SPECIES	VOLUME	% of SOFTWOODS	% of HARDWOODS	% of ALL SPECIES
JACK PINE	2,457	41.3%		29.8%
BLACK SPRUCE	2,722	45.8%		33.0%
WHITE SPRUCE	583	9.8%		7.1%
BALSAM FIR	126	2.1%		1.5%
TAMARACK LARCH	55	0.9%		0.7%
EASTERN CEDAR	3	0.1%		0.0%
TOTAL SOFTWOOD	5,946	100.0%		72.0%
TREMBLING ASPEN	1,799		77.8%	21.8%
BALSAM POPLAR	256		11.1%	3.1%
WHITE BIRCH	229		9.9%	2.8%
OTHER HARDWOODS	27		1.2%	0.3%
TOTAL HARDWOODS	2,311		100.0%	28.0%
TOTAL	8,257			100.0%

Current Wood Surpluses

Current wood surpluses are defined as the difference between the AAC and the current level of utilization as indicated by the average annual volume of roundwood extracted during the five-year period from 1986-1991. On provincial Crown land - Open Zone as a whole (see Volume 2), 79% of the available AAC volume is not being harvested. More specifically, the total softwood harvest could be increased 3.5 to 5 times, and the hardwood harvest almost 15 times.

The available surpluses change significantly if the generally inaccessible areas of Churchill and Hayes River Forest Sections are deleted from the surplus calculation. Even in the areas considered accessible, less than 40% of the AAC is being used. Only in the Pineland, Saskatchewan River and Mountain Forest Sections, and in individual Forest Management Units in the Lake Winnipeg East Forest Section, is the actual harvest approaching the allowable level for softwoods. The hardwood harvest in

TABLE 3

MANITOBA ANNUAL ALLOWABLE HARVEST BY FOREST SECTION PROVINCIAL CROWN LAND - OPEN

(Volumes in thousands of cubic metres per year)

FOREST SECTION	SOFTWOODS VOLUME	%	HARDWOODS VOLUME	%	TOTAL VOLUME	%
ASPEN PARKLAND	2	0.0%	60	2.6%	62	2.6%
MOUNTAIN	402	6.8%	578	25.0%	980	25.0%
PINELAND	222	3.7%	140	6.1%	362	6.1%
LAKE WINNIPEG EAST	774	13.0%	215	9.3%	989	9.3%
INTERLAKE	450	7.6%	343	14.8%	793	14.8%
SASKATCHEWAN RIVER	484	8.1%	119	5.1%	603	5.1%
HIGHROCK	968	16.3%	250	10.8%	1,218	10.8%
CHURCHILL RIVER	82	1.4%	7	0.3%	89	0.3%
NELSON RIVER	953	16.0%	247	10.7%	1,200	10.7%
HAYES RIVER	1,609	27.1%	352	15.2%	1,961	15.2%
TOTAL	5,946	100.0%	2,311	100.0%	8,257	100.0%
Percent	72.0%		28.0%		100.0%	

these areas remains at a fraction of allowable levels. A 12% increase in hardwood use reported in the Pineland Forest Section during the first five-year reporting period did not herald a trend for the second five years as expected. The utilization of hardwood species is expected to increase over the long-term. A difference may be seen in the next five-year period if Repap Manitoba proceeds with expansion and projected utilization of up to 835,000 m^3 of hardwo[illegible] (trembling aspen).

TABLE 4
HARVEST REVENUE

YEAR	TOTAL HARVEST (Cubic Metres)	REVENUE ($)	$/m3
1971-1972	1,333,426	697,703.88	0.523
1972-1973	1,571,544	811,851.80	0.517
1973-1974	1,588,759	843,081.37	0.531
1974-1975	1,932,383	924,586.53	0.478
1975-1976	1,851,552	1,739,308.27	0.939
1976-1977	1,519,998	1,345,601.20	0.885
1977-1978	1,646,562	1,176,078.00	0.714
1978-1979	1,714,300	1,292,180.63	0.754
1979-1980	1,940,082	1,624,290.86	0.837
1980-1981	2,320,031	1,908,776.72	0.823
1981-1982	1,782,078	1,792,589.82	1.006
1982-1983	1,478,092	1,383,734.70	0.936
1983-1984	1,500,332	1,964,510.80	1.309
1984-1985	1,673,031	2,302,339.73	1.376
1985-1986	1,688,897	2,473,081.25	1.464
1986-1987	1,669,132	2,682,289.37	1.607
1987-1988	1,854,337	2,961,462.33	1.597
1988-1989	1,856,697	2,622,014.79	1.412
1989-1990	1,830,807	2,108,127.18	1.151
1990-1991	1,552,354	2,079,276.43	1.339

Revenue : Dues in respect of Crown Timber harvested

Wildfire Losses

Wildfire continues to be the major cause of forest volume loss. As a result, fire loss is closely monitored, and the information is entered into the fire management data base for calculation and subsequent recalculation of the AAC. A summary of wildfire losses expressed in area and volume is presented in Volume 2.

The area in Manitoba affected by wildfire losses over the five-year reporting period averaged 849,965 ha per year, of which 410,500 ha per year were productive forest land. In the previous five-year period, equivalent losses averaged 120,660 ha per year, of which 71,020 ha per year were productive forest land losses.

During 1989-1990 the province suffered the worst fire year in recorded history. In 1989, 1,226 fire starts were recorded, over 40% of which were man caused. Over 2.6 million ha burned in the Forest Zone, resulting in a loss of more than 68 million m^3 of

merchantable timber. This is nearly 27 times the average annual wood volume loss recorded over the five-year period described in the first status report to the Legislature. In addition, 931,800 ha burned in the Tundra Transition Zone, for a total area burned in Manitoba of almost 3.6 million ha.

Volume losses over the five-year period have averaged 18 million m^3 per year. The Hayes River Forest Section was most severely impacted, accounting for approximately 27% of the average volume loss (see Volume 2).

Forest Balance

Forest balance is defined as the difference between growth and all measured depletion sources or drain on the forest resources (see Volume 2). Drain (or depletion) is the decrease in merchantable volume in a managed forest. Drain due to harvesting is based on the average volume harvest over the five-year period 1986-1990. Drain due to wildfire is the average merchantable volume loss over the period 1986-1990. No recalculation was made to allow for volumes of fire-killed timber that were salvaged.

Due to the 1989 wildfire losses estimated softwood species drain represents 126% of total softwood growth for the province. This means that fire losses exceeded all growth volume by 26% over the five-year reporting period. Drain is calculated for each Forest Section, then averaged for the province. The five-year softwood drain ranges from a low of 7% in the Aspen Parkland Forest Section, to a high of 190% in the Saskatchewan River Forest Section. Hardwood species drain represents 55% of the total growth for the province. Species drain of hardwoods ranges from a low of 3% in the Aspen Parkland Forest Section to a high of 133% in the Highrock Forest Section (see Volume 2).

Between five and ten years with minimal fire losses will be required for remaining forest lands in Manitoba's Forest Zone to restore this exceptional volume loss to pre-1989 levels. Specific Forest Management Units such as FMU 41 (Hodgson) and FMU 54 (Wekusko) will take much longer to fully recover. Despite the devastating fires of 1988 and 1989 the total species drain for softwood and hardwood species combined equalled total growth in the forest zone for the five-year period at 100% (i.e. volume losses equalled volume growth).

Forest Geographic Information System (FORIST)

The Forest Geographic Information System became fully operational in August, 1986, based on a successful pilot project in the Pineland Test Area (1,900 Km^2) in southeastern Manitoba. Procedures for processing available forest cover information for the 20 pilot townships (approximately 95 Km^2 each) were finalized, and basic operational applications were entered into the computer system. Data included location of each forest stand and nonforest area, together with ownership class, status, and the Universal Transverse Mercator grid (UTM) coordinates of the area.

Data for the remainder of the Pineland Forest Section were loaded into the system, followed by the Lake Winnipeg East, Saskatchewan River, Highrock and major portions of the Mountain, Interlake and Nelson River Forest Sections. As of March 31, 1991, an area of 183,350 km^2 had been placed on line in computer storage. This area represents 47% of Manitoba's total Forest Zone, and 94% of Manitoba's Forest Management Licence areas together with those Forest Sections providing forest volumes in support of Manitoba's Quota holders.

Regional Geographic Information System Workstations were installed in Southern, Eastern, Western and Northwestern Administrative offices supported with data developed by the FORIST system in Winnipeg. As a result, regions have been able to effectively evaluate and analyze possible impacts associated with hydro line clearing and identifying great grey owl habitat, among other developments. As knowledge and operational experience with this new technology increase, impact evaluations will become more sophisticated, covering a wider range of situations.

Timber Management

Timber Dues

During the period covered by this report, provincial timber dues were adjusted annually in line with the Forest Products Price Index (FPPI). This index was developed for Manitoba in 1980 in conjunction with a new dues structure. An annual price index is weighted by provincial production of pulpwood and lumber and is used to adjust the dues level. As well, every five to seven years the entire timber dues structure including fees, dues and other charges is reviewed and changed, if warranted.

Such a five-year review was undertaken in the spring of 1985. As a result of the review, the jack pine pulpwood rate concession was removed the following October. FPPI adjustment to the dues schedule originally planned for early in 1985 was waived for the 1985-1986 season.

Table 4 depicts the harvest levels, Crown dues collected from timber charges and the average cubic metres dues rate since 1971-1972.

Timber Quota System

In 1989, the branch contracted two independent consultants to conduct a series of regional meetings to solicit the views of Manitoba's forest industry on the timber quota system. It was decided that quota holders should continue to be granted

TABLE 5
TIMBER PERMIT AND TIMBER SALE STATISTICS
(Five Year Summary)

	TIMBER PERMITS			TIMBER SALES							
YEAR	NUMBER	VOLUME (m3)	% PROV. TOTAL VOLUME	NUMBER	VOLUME (m3)	% PROV. TOTAL VOLUME	TOTAL PERMITS & SALES (m3)	PERMITS & SALES % of PROV. TOTAL VOLUME	FOREST MANAGEMENT LICENCE VOLUME (m3)	% PROV. TOTAL VOLUME	TOTAL HARVEST (m3)
1981-1982	8,475	143,406	8.0%	302	646,345	36.3%	789,751	44.3%	992,327	55.7%	1,782,078
1982-1983	9,674	196,340	13.3%	326	631,971	42.8%	828,311	56.0%	649,781	44.0%	1,478,092
1983-1984	8,174	195,301	13.0%	301	627,456	41.8%	822,757	54.8%	677,575	45.2%	1,500,332
1984-.985	6,907	169,738	10.1%	255	621,273	37.1%	791,011	47.3%	882,020	52.7%	1,673,031
1985-1986	6,944	194,752	11.5%	252	627,348	37.1%	822,100	48.7%	866,797	51.3%	1,688,897
5yr Total	40,174	899,537		1,436	3,154,393		4,053,930		4,068,500		8,122,430
5yr AVERAGE	8,035	179,907	11.1%	287	630,879	38.8%	810,786	49.9%	813,700	50.1%	1,624,486
1986-1987	5,961	192,911	11.6%	203	640,247	38.4%	833,158	49.9%	835,974	50.1%	1,669,132
1987-1988	5,510	214,495	11.6%	203	639,130	34.5%	853,625	46.0%	1,000,712	54.0%	1,854,337
1988-1989	4,771	149,618	8.1%	194	671,105	36.1%	820,723	44.2%	1,035,974	55.8%	1,856,697
1989-1990	5,302	164,538	9.0%	198	642,590	35.1%	807,128	44.1%	1,023,679	55.9%	1,830,807
1990-1991	5,868	168,545	10.9%	197	323,347	20.8%	491,892	31.7%	1,060,462	68.3%	1,552,354
5yr TOTAL	27,412	890,107		995	2,916,419		3,806,526		4,956,801		8,763,327
5yr AVERAGE	5,482	178,021	10.2%	199	583,284	33.3%	761,305	43.4%	991,360	56.6%	1,752,665

cutting rights for 10 years, to be reviewed at five-year intervals. If utilization levels were met, an additional five years could be granted, continuing the quota commitment. This system remains in place today.

Since the inception of the quota system in 1965, the number of timber quota permits decreased from 1,895 to 37. Most of this 98% reduction occurred by the mid 1970s . Timber sales, however, have a one-year undercut carry forward privilege.

Since early 1991, operators who use 60% or more of their softwood or hardwood quota volumes are not subject to revision. Quotas which have been totally inactive may be cancelled. Quotas less than 60% utilized will be adjusted to reflect their five-year average use level. This means that if a timber sale quota operator only uses 50% of a five-year volume entitlement, the harvest volume would be reduced by 10% (60% - 50%) for the second five-year period.

Timber Sales and Timber Permits

Timber sales and timber permits are the authorities under which all provincial operators excepting Repap Manitoba and Abitibi-Price Inc. harvest Crown timber. Combined, these timber sales and permits account for 32% to 50% of the total provincial Crown land harvest, representing 200-250 commercial operators and several thousand own-use permitees. Table 5 sets out the number of timber permits, timber sales, volume and percentage they represent of the total harvest.

Of note from Table 5 is that timber sales and permits (the two cutting authorities) account for over half (43%) of the five-year provincial Crown land harvest. The amount harvested by the larger timber sale operators totalled almost 584,000 m^3.

Roundwood Measurement Training

During the period under review the Forestry Branch held four full Certification Scaling Courses to train and licence scalers in Manitoba. The one week courses covered both theory and practical field training. A total of 54 candidates attended the annual courses, and 85% of the candidates met the requirements for a full licence (a score of 65% or better required). Courses from 1987-1990 were held at Swan River. Candidates included provincial and federal government employees, industry employees and students enrolled in forestry or natural resources programs (Table 6).

TABLE 6
SCALER LICENCE CERTIFICATION TRAINING
1986-1991

			CANDIDATE CATEGORY		
Year	**Total**	**Certified**	**Gov't**	**Industry**	**Education**
1987-1988	21	19	16	5	–
1988-1989	11	9	8	2	1
1989-1990	9	7	1	7	1
1990-1991	13	11	3	5	5
Total	54	46	28	19	7
%	100	85	52	35	13

Trends, Forecasts for Demand and Forest Resource Use

Both constructive (wood using) and destructive (fires, clearing) uses of the forest reached record levels during the five-year review period. During the 1988 forest fire season, approximately 473,000 ha burned, representing the fifth-largest fire loss to that date. However, in 1989 the forest fire situation exploded; an unprecedented 2.6 million ha were burned in the Forest Zone. The previous record was set in 1929, when approximately 1.4 million ha of forest land burned. Approximately $68 million were spent fighting more than 1,200 fires and evacuating 24,500 residents in 32 communities. In addition to fire losses, hail damaged a large area of timber in the Porcupine Mountain Provincial Forest in 1988, and winds knocked down timber stands in the Eastern Region in both 1988 and 1989.

During the period under review, pressure mounted to set aside or remove areas from commercial forest harvesting, for a variety of reasons. Manitoba Hydro announced plans for construction of Bipole III, a major transmission line running nearly the length of the Forest Zone. Protection zones were created for Shoal and Clearwater Lakes. Proposals banning forest harvesting from certain areas could significantly affect the availability of harvestable timber, and the corresponding commitments made to the forest industry by the province.

Several constructive use initiatives were announced during the review period. In early 1989, the Manfor Ltd. complex at The Pas was sold to Repap Pulp and Paper Inc., a Montreal based pulp and paper company with mills in British Columbia, New Brunswick and Wisconsin. Terms of the sale included constructing a new pulp mill with three times the present capacity and converting the existing pulpmill to use hardwoods. Expansion was estimated to cost over one billion dollars. To date, none of the planned expansion has occurred.

In August of 1988, a timber supply agreement was reached with Palliser Furniture Ltd. for its particleboard plant. Wood volumes (mainly trembling aspen) were provided from areas north and east of Winnipeg. Roblin Forest Products rebuilt and modernized its pressure-treating facilities, and Spruce Products commenced direct field chipping of pulpwood for sale to Repap. Reynolds Wood Products announced that a small plant manufacturing tongue depressors, stir sticks and other similar products would be built in the Whitemouth area. Unfortunately, Sandilands Forest Products, the largest sawmill in southeastern Manitoba closed down on October 10, 1989.

The annual average harvest increased to approximately 1.7 million m^3 from 1986 to 1991, despite a significant drop in timber use in 1990-1991. This represents an average annual increase of 128,000 m^3, or 7.8% over the previous five years. Most of the increase can be attributed to the sawmill modernization project completed at Manfor during the previous five-year period. Pulpwood consumption was estimated at the same level as the previous five-year period, whereas fuelwood consumption decreased by an average of 17,000 m^3 per year. These three products (lumber, pulpwood, and fuelwood) account for over 98% of the total provincial harvest reported from Crown lands (Table 7, Figure 9).

Future trends and industrial use demands may initially depend upon the rate of recovery from the severe economic downturn of the early 1990s. Several accessible harvesting areas are now at or close to their allowable harvest levels. Reducing the land area which support these harvest activities could be a serious blow to regional economies. The developing environmental consciousness is expected to increase; thus our challenge is to sustain and develop our forest resources for both the present and the future in an environmentally sensitive manner.

Evaluation of Capability to Meet Anticipated Demands

The forest resources in each Forest Management Unit in Manitoba are evaluated to determine their extent and their capability to provide for the needs of Manitoba's forest industry, both existing and proposed, and to provide for other consumptive and non-consumptive needs of Manitobans in general.

Determinations of harvest capability to meet harvest demand are made based on utilization standards which are determined to match present utilization requirements. Harvest availability is calculated for all Forest Management Units regardless of present accessibility. Changes in utilization related to the available forest resource may or may not result in modifications to volumes available for harvest depending on the nature of the change expected or implemented.With respect to volumes utilization, Tables 2 and 3 show the current 5-year average annual harvest of 1.75 million cubic metres of hardwood and softwood species can be easily maintained by the current annual allowable volume available for harvest of 8.27 million cubic metres. The present demand situation continues to focus on accessible or near accessible forest lands. Areas must be serviced by a basic road network or a proposed road construction program, for without this improvement the timber supply situation must be altered.

An assessment of the next five year demand and supply of the timber segment of the forest resource is shown in Table 8.

In evaluating current demand at present utilization levels excluding remote Forest Management Units and Forest Sections, the projected supply of both softwood volume and hardwood volume exceeds demand by 54% for softwood, 90% for hardwood and 66% for hardwoods and softwoods combined. Manitoba's forest resources available for harvest can meet the normal expected demand.

In evaluating current demand on the basis of the peak harvest levels achieved to date, plus an optimistic 3% annual increase over the next five years excluding the same remote areas as above, the projected supply of softwood and hardwood volumes exceeds demand by 38% for softwood, 89% for hardwood and 54% for both species groups. Manitoba's forest resources available for harvest can meet the potential expanded demand.

In evaluating the projected increase in demand which would be required upon the approval of the proposed increase in utilization of both softwood and hardwood volume for pulpwood rather than the present focus on sawlog volumes by Repap Manitoba's Phase 2 development, both the demand and supply estimates require initial modifications.

Available supply from the same areas supporting the first two evaluations increases for the following reasons. Hardwood volumes would be utilized in a major portion of the Forest Management Licence area for the first time for pulpwood. Initial calculations considered hardwood volumes only for sawlog production, which excluded all small- diameter mature hardwoods. As the Repap Manitoba Phase 2 development proposal and associated technological change achieves approval, additional increases in available wood supply may be possible. Analysis indicates that based on proposed harvest levels after the Phase 2 Repap expansion, allowing for a 2.5% annual increase over the next five years excluding the same remote areas as previously considered, the projected supply of softwood and hardwood exceeds demand by 13% for softwood, 51% for hardwood and 27% for both species groups together. Manitoba's forest resources available for harvest can meet this potential increased demand.

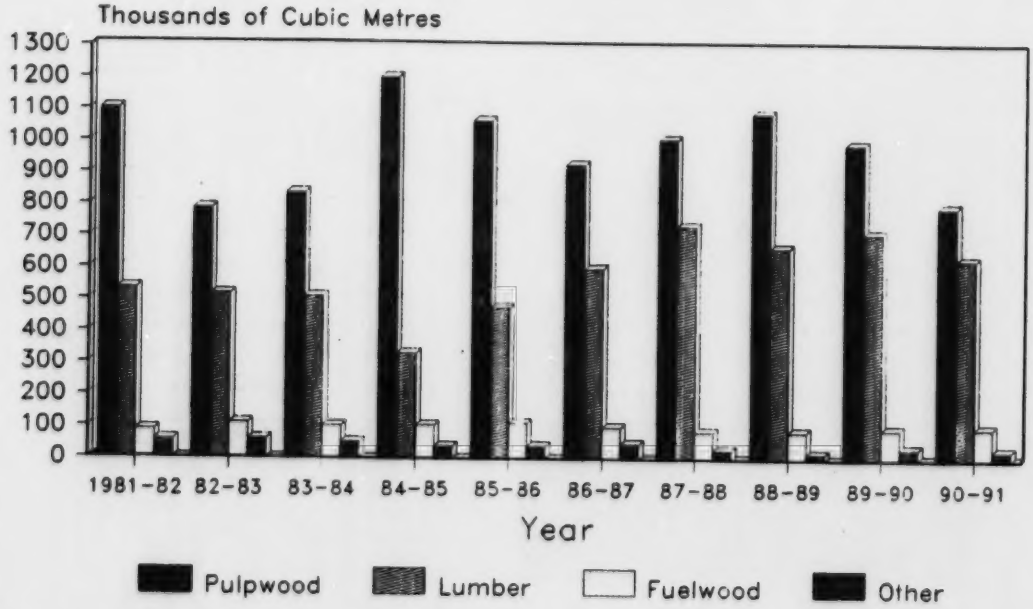
TABLE 7
SUMMARY OF ANNUAL FOREST PRODUCTION BY FOREST PRODUCT

(In Cubic Metres)

1981-1982 to 1990-1991

YEAR	PULPWOOD		LUMBER		FUELWOOD		OTHER		TOTAL	
	VOLUME	%	VOLUME	%	VOLUME	%	VOLUME	%	VOLUME	%
1981-1982	1,100,921	61.8%	535,034	30.0%	88,369	5.0%	57,754	3.2%	1,782,078	100.0%
1982-1983	787,879	53.3%	518,062	35.0%	111,555	7.5%	60,596	4.1%	1,478,092	100.0%
1983-1984	837,756	55.8%	509,476	34.0%	102,474	6.8%	50,626	3.4%	1,500,332	100.0%
1984-1985	1,201,970	71.8%	330,228	19.7%	103,593	6.2%	37,240	2.2%	1,673,031	100.0%
1985-1986	1,065,361	63.1%	474,826	28.1%	110,561	6.5%	38,149	2.3%	1,688,897	100.0%
1986-1987	927,085	55.5%	598,168	35.8%	98,039	5.9%	45,840	2.7%	1,669,132	100.0%
1987-1988	1,007,882	54.4%	733,269	39.5%	84,573	4.6%	28,613	1.5%	1,854,337	100.0%
1988-1989	1,088,960	58.7%	664,544	35.8%	85,611	4.6%	17,582	0.9%	1,856,697	100.0%
1989-1990	992,654	54.2%	711,478	38.9%	93,632	5.1%	33,043	1.8%	1,830,807	100.0%
1990-1991	796,118	51.3%	630,655	40.6%	98,105	6.3%	27,476	1.8%	1,552,354	100.0%
10yr AVERAGE	980,659	58.1%	570,574	33.8%	97,651	5.8%	39,692	2.4%	1,688,576	100.0%

Figure 9:
Summary of Annual Forest Production by Forest Product.



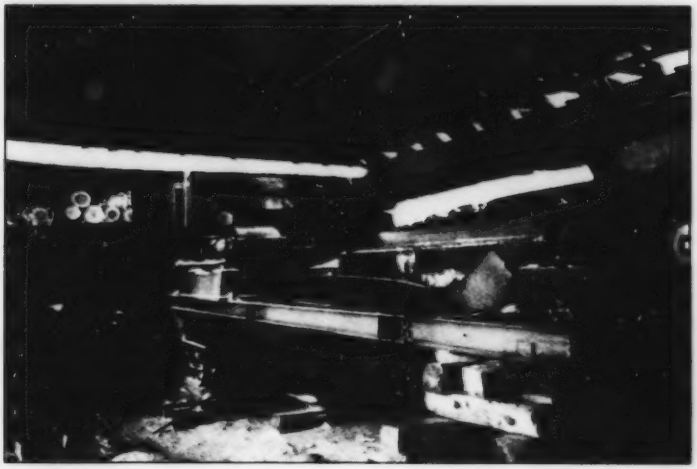
1981-82 to 1990-91

TABLE 8
FIVE-YEAR DEMAND FOR THE SUPPLY OF TIMBER: 1991-1995

Demand	(millions of cubic metres) Softwood	Hardwood	Total
Current annual harvest (last 5 year average)	1.595	0.157	1.752
5-year growth in harvest @ 2.5% per year	0.199	0.020	0.219
Projected harvest level at end of 5 years	1.794	0.177	1.971
Alternatively			
Peak annual harvest achieved (within last 20 years)	2.118	0.200	2.318
5-year growth in harvest @ 3% per year	0.318	0.030	0.348
Projected annual harvest level at end of 5 years	2.436	0.230	2.660
Alternatively (Repap Phase II Operating)			
Proposed total annual harvest (after Repap expansion)	3.195	1.035	4.230
5-year growth in harvest @2.5% per year	0.399	0.129	0.528
Projected annual harvest level at end of 5 years	3.594	1.164	4.758

Supply	(millions of cubic metres) Softwood	Hardwood	Total
Provincial Annual Allowable Cut (AAC)	5.946	2.311	8.257
Exclude Remote Forest Sections (36,37,39,86,88, Churchill & Hayes River)	2.051	0.430	2.481
Net AAC at present utilization levels	3.895	1.881	5.776
Increase in AAC: pulpwood predominant utilization and new species utilization options (FML #2)	0.203	0.452	0.655
AAC volumes new proposed utilization levels for next 5-year period	4.098	2.333	6.431

Revisions to annual available harvest volumes required due to 1989 wild fire losses will continue into the next five-year reporting period. Wildfire losses will adversely impact some of the forest management units within the accessible forest area required to support Manitoba's new or established forest industries. Holdbacks of annual harvest volumes in the amount of 12 to 15 percent in conjunction with low annual utilization levels over the past fifteen years will help to minimize the wildfire impact.



SILVICULTURE

Silviculture refers to the art and science of growing trees. It involves the renewal of harvested and burned forests and the subsequent tending of the forest crop. Silviculture procedures are carried out to regenerate depleted forests and to improve the productivity of regenerated as well as natural forests. The goal is to increase the AAC, thereby contributing to Manitoba's long term economic and environmental health.

The role of the Silviculture Section is to coordinate Manitoba's silviculture program, ensuring that provincial silvicultural standards are achieved in the most cost efficient manner. Site preparation, direct seeding, planting and stand tending programs are implemented by the Forestry Branch Operations Section and the province's two largest forest industries, Repap Manitoba and Abitibi-Price Inc. The companies are responsible for forest renewal activities within their Forest Management Licence (FML) area. Each company pays for these activities through its Forest Renewal Trust Fund. This fund has been established from the forest renewal charge levied on the companies as a separate fee, in addition to the regular stumpage charge, for all wood harvested within their FML areas.

The Silviculture Section has five major subdivisions: Forest Renewal, Forest Nursery Management, Stand Tending, Tree Improvement and Silviculture Surveys and Statistics.

Forest Renewal

During the past five years, forest renewal treatments were carried out on 40,140 ha of forest land in Manitoba (Table 9), a 47% increase over the total area treated in the previous five years. This expanded program can be attributed to two factors: 1) increased funding for forest renewal under the 1984-1989 Canada-Manitoba Forest Renewal Agreement, and 2) the forest industry assuming responsibility for reforesting cutover lands within its FML areas. By the 1990 field season, Abitibi-Price Inc. and Repap Manitoba were carrying out 54% of the renewal program in Manitoba.

TABLE 9
TOTAL HECTARES TREATED*

	1986	1987	1988	1989	1990	1986-90 Total	1981-85 Total
Forestry Branch	2,966	3,934	4,054	4,696	4,133	19,783	19,416
Abitibi-Price Inc.	584	1,254	1,350	2,229	950	6,367	4,299
Manfor Ltd.	1,694	2,290	3,433			7,417	3,666
Repap Manitoba				2,755	3,821	6,576	
Total	5,244	7,478	8,837	9,680	8,904	40,143	27,381

* Area treated does not include natural regeneration, site preparation for planting or tending treatments performed in plantations or natural stands. Site preparation was not included in Table 9 because the treatment alone will not regenerate a site. Planting and seeding occur almost exclusively on prepared sites, so (to avoid duplication) only the areas planted or seeded were included in Table 9 and Figure 10.

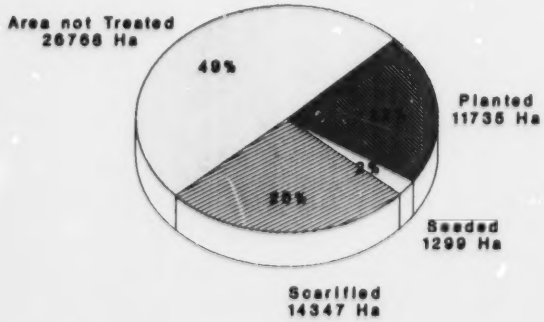
Intensive silvicultural treatments, such as tree planting, have also increased. Figure 10 illustrates the area harvested and the area treated, broken down by method of treatment, from 1981-1985 and from 1986-1990. During the past five years the area planted in Manitoba has almost tripled. Although silvicultural treatments such as direct seeding and scarification for natural regeneration have succeeded on certain sites, tree planting has generally proven to produce higher levels of regeneration stocking overall.

Site Preparation

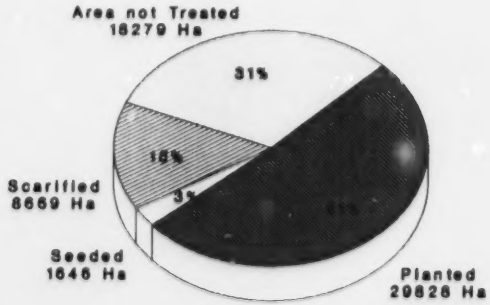
Preparation of cutover sites to develop receptive seedbeds or appropriate microsites for planting is an essential first step in forest renewal. Such site preparation involves removing some of the ground cover and mixing the nutrient rich humus with the underlying soil. The type of equipment chosen to mechanically prepare a cutover depends on site attributes and the prescribed regeneration treatment. Mechanical equipment such as the Bracké patch scarifier, powered or passive disc trenchers and shear-blade plows are used most often in Manitoba. In areas where competing vegetation levels are high ground applications of the herbicide Vision® have been applied in conjunction with mechanical site preparation equipment.

Figure 10:
Area Harvested and Treated
Province of Manitoba

1981 to 1985
54,149 Hectares Harvested



1986 to 1990
58,422 Hectares Harvested



Scarification for Natural Regeneration

Scarification differs from site preparation in that there are no subsequent treatments to regenerate the site. Scarification relies on natural regeneration from cone-bearing branches left on the ground or from nearby trees. Heavy chains and pads dragged behind a skidder aid in distributing the cones, and in exposing mineral soil onto which the cones release their seed. Scarification has proven a cost effective method of regenerating jack pine when used on suitable sites and appropriately timed.

From 1986 to 1990 about 1,700 ha were scarified annually, representing 20% of the total area treated. This is down significantly from the previous five years, where scarification accounted for 53% of the total area treated. Increased funding for tree planting in the past five years has enabled forest managers to restrict the use of lower cost treatments like scarification to sites where they are most effective.

Direct Seeding

With the exception of 1989, under 40 ha have been hand or aerial-seeded annually in Manitoba during the past five years. Direct seeding is used infrequently because application and seed costs are high, and previous project results have been inconsistent. However, using small, plastic seed shelters in conjunction with hand seeding has shown great potential for regenerating sites with shallow soils that are difficult to plant.

In 1989, about 1,580 ha of recently burnt cutovers were aerial seeded with jack pine seed, as not enough trees were left to naturally reseed the area. The receptive seedbed created by the wildfires contributed to this project's success.

Tree Planting

Over 66.5 million trees were planted in Manitoba from 1986 to 1990, about 40 million more seedlings than in the previous five-year period. The program peaked in 1988 with 15.7 million trees planted, declining to 13.8 million in 1990 (Figure 11). The decrease can be attributed primarily to the 1989 fire season and the related planting shutdown, resulting in the cull of one million seedlings due to prolonged storage. Termination of the 1984-1989 Canada-Manitoba Forest Renewal Agreement also had some impact on the number of trees planted in 1990.

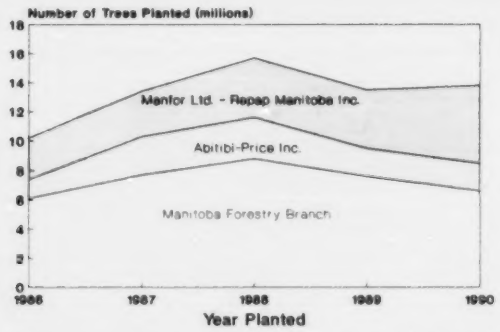


Figure 11: Area Planted by Agency from 1986-1990.

The past five years have seen an increase in the use of containerized seedlings grown in greenhouses. Containerized stock now is used for 66% of the planting program. Container stock has become increasingly popular due to its ability to be stored and planted over a longer time period, enabling more flexible planting programs and higher levels of survival. Larger bareroot stock is still preferred for

sites with high levels of competing vegetation, although problems with winter desiccation damage, shorter storage periods, and post-planting shock have generally reduced the demand for this stock type.

In 1990, snow caching, the over-winter field storage of seedlings under a blanket of snow and sawdust, was tried for the first time in Manitoba. Recent developments like snow caching, frozen storage of container stock, and increased monitoring of stock during transport and field storage have improved the physiological condition and subsequent survival of planting stock.

Contract tree planting has increased to the point where, in 1990, 85% of the trees planted for the Forestry Branch were handled by private contractors. About 20 planting contracts were tendered by the Forestry Branch annually from 1986-1990. This high number of contracts is attributable to the expanded planting program, short planting period and use of small beginner contracts to encourage new contractors.

Stand Tending

Stand tending in Manitoba includes removing competing vegetation from plantations (also referred to as release), and spacing or thinning dense young stands. The main objective of spacing and thinning is to optimize the amount of nutrients, light and moisture available to the crop trees, thereby increasing the merchantable volume produced within the rotation (growing) period. In the past five years, 1,955 ha of dense natural regeneration were thinned.

Release operations are carried out before spacing and thinning, and are targeted at non-crop species. From 1986 to 1990, 1,915 ha of plantations were released using aerial and ground applications of Vision® herbicide. This represents only 7% of the total area receiving regeneration treatments during that time, and is also less than one-third the area released in the previous five-year period. The expanded planting program has raised concerns by provincial and industry forestry staff that the current release program is inadequate, as each year more plantations are suffering growth reductions and mortality due to competing vegetation.

Nursery Management

Seedlings for provincial Crown land reforestation are provided by the two provincial nurseries and the private sector. Pineland Provincial Forest Nursery, near Hadashville, opened in 1953, and in 1956 the first crop of one million trees was planted. It was anticipated that when fully developed, annual production would be approximately eight million seedlings. Today, Pineland Provincial Forest Nursery has the capacity for growing 10 million bareroot and 9.2 million containerized seedlings.

Clearwater Provincial Forest Nursery, located near The Pas, opened in 1983, and in 1985 the first crop of one million trees was planted. The Clearwater Nursery is a container production facility able to grow 7.2 million seedlings per year.

In 1990, the Province of Manitoba entered into an agreement with Sioux-McDonald Ltd. of Portage la Prairie for the production and purchase of 900,000 seedlings. Private sector provision of seedlings for the provincial reforestation program is expected to continue.

The Pineland Provincial Forest Nursery has also become the provincial centre of nursery activities. The nursery acts as the repair and distribution centre for all silviculture equipment including provincial site preparation equipment and the nine refrigerated vans used in provincewide seedling delivery. All equipment is moved via rental agreements with the Department of Highways and Transportation or with

private contractors. The provincial seed extraction plant and seed vault are also located at Pineland. A tree improvement facility was opened in 1987.

A large freezer that can store approximately 10-14 million seedlings has been constructed at Pineland Nursery. This has enabled the overwintering of container stock indoors with precise environmental control and an extended planting period with stock in optimum condition.

Field Production

Thirty-eight hectares at Pineland Nursery have been set aside for bareroot production, with a capacity of about 10 million bareroot seedlings. Five years of field monitoring all stock types have been positive, resulting in more requests for container grown and larger bareroot seedlings. To accommodate the latter demand, 4-year old white spruce transplants for heavier competitive sites, and 3-year old

black spruce transplants are produced for other specific sites. Some two-year old jack pine seedlings will also be produced.

Root culture practices such as wrenching and pruning have produced higher quality seedlings. Soil analysis with subsequent development of optimum nutrient levels for the nursery soils has shown very promising results. The soils work was done through an extended contract with the University of Toronto.

Some practices have changed considerably during the past five years. The new freezer provides the opportunity (weather permitting) to lift all spruce bareroot seedlings in autumn for winter storage. The seedlings are maintained at -3°C until delivery in February to snow caches, or until spring for immediate planting. Most of the bareroot jack pine and red pine is still lifted in spring and cooled to +1°C in the cooler. These methods have improved the health of the seedlings at the time of planting, thus boosting their survival rate once planted. The demand for bareroot stock is estimated at three to five million seedlings per year for the next five years.

The reduction in bareroot demand is attributable to the survival of the containerized stock, as well as the shortened forecasting time and decreased cost of production and planting. Bareroot stock will be used where difficult sites require larger stock for successful reforestation.

Greenhouse Production

The Clearwater Nursery can produce 7.2 million seedlings using a two crop production cycle in 20 greenhouses. At Pineland, production has reached 9.2 million seedlings using 14 greenhouses and 12 coldframes. Greenhouses can grow two crops per year, whereas the coldframes produce a single crop. Coldframes were previously used for crop hardening; however, now that the nursery has a holding area for that purpose, coldframes can be used for crop production.

Since 1987, greenhouse seedlings have been grown in rigid plastic containers rather than paperpot containers. Seedlings grown in plastic containers have shown significantly improved quality and subsequent survival in plantations. These containers have also proven more economical, because they can be used up to 10 times before disposal.

With the new cold storage capacity, seedlings are now packaged and stored at -3°C through the winter instead of being overwintered outside, which has resulted in substantial losses in the past. The present practice eliminates winter losses and produces much healthier seedlings for planting, thereby eliminating much of the guesswork involved in estimating the number of seedlings available for spring planting.

Both nurseries are equipped with obsolete wood burning heating systems. Experimentation with infrared heating systems for two growing seasons has shown some potential, but further investigation is required.

Tree Improvement Programs

The goal of the tree improvement program is to increase the yield and quality of wood produced from plantations by developing genetically improved planting stock. The process begins by selecting a large number of "plus trees" which appear to be superior due to their above-average growth and excellent stem form. Between 200 and 450 trees are selected from the best natural stands located throughout each seed zone to establish a broad genetic base (Table 10). The seed from each tree is considered a family and is used to establish family tests and seed orchards. Tests are used to determine which families are superior and thus should be left in the seed orchard to produce genetically improved seed (these are referred to as Family Tests).

Forestry Canada initiated a jack pine tree improvement program in Manitoba over twenty years ago. During the past five years, the Forestry Branch has worked with Forestry Canada to establish four seed orchards located around the province. In 1989, the Forestry Branch took over management of these orchards, which are expected to begin producing improved seed by 1994.

Three factors have accelerated activity in the black spruce and white spruce tree improvement programs over the last five years: the opening of a tree improvement

TABLE 10
TREE IMPROVEMENT PROGRAM UPDATE

Species	Breeding Zone	#Plus Trees Selected	Family Tests Established	Seed Orchards Established	Clone Bank
Jack Pine	Eastern	226	4 sites 4.1 ha	6.0 ha	0.2 ha
	Western	244	1 site 1.0 ha	0	
	Interlake	320		4.0 ha	
	Northern	320		4.0 ha	
Black Spruce	Southeast	450	2 sites 10.1 ha	0	
	Lk. Wpg. East	450	3 sites 9.6 ha	7.5 ha	0.7 ha
	Interlake	171		(4.0 ha cleared)	
	Sask. River	450	3 sites 10.8 ha	(11.0 ha cleared)	
White Spruce	Mountain	380	4 sites 8.1 ha	(5.0 ha cleared)	
Total		3,011	17 sites 43.7 ha	21.5 ha	0.9 ha

facility at Pineland Nursery in 1987; the establishment of the Manitoba Tree Improvement Co-operative in 1989, which includes the Forestry Branch, Abitibi-Price Inc. and Repap Manitoba, and the development of a provincial tree improvement strategy. During this time, 1,520 black spruce and 380 white spruce plus trees were collected. Over 100,000 family test seedlings were planted on 17 sites, one seed orchard site was planted and four other orchard sites were prepared for planting in 1991. By the year 2000, one-quarter of all planting stock produced will be from genetically improved seed sources which will increase the yield and quality of wood produced from plantations. The first generation program is expected to produce trees with improved stem form, resistance to disease and a 10% increase in growth rate.

Silviculture Surveys Program

Regeneration surveys are the initial inventory of an area following harvesting, fire or reforestation treatment. Regeneration surveys document the degree of softwood and hardwood regeneration while providing a comprehensive assessment of seedling quantity, quality and spatial distribution. Data collected by regeneration surveys form an essential component of a sound forest management strategy.

Most areas are surveyed three to seven years following depletion so as to detect seedlings which meet established age and height standards. Surveys are conducted by the Forestry Branch Silviculture section and by representatives of Abitibi-Price Inc. and Repap Manitoba on their FML areas.

In 1986, provincial regeneration survey methods and stocking standards indicating satisfactory regeneration were revised. The major changes included a larger plot size, a systematic rather than random sample design, and a softwood stocking standard that reflected the increase in plot size.

In 1989, three interim stocking standards were developed to address increased use and management of mixedwood and hardwood forests. In 1991, these interim stocking standards will be replaced by four forest regeneration standards. These regeneration standards correspond to the four cover types recognized by the Forest Management section: Softwood (S), Mixedwood-conifer (M), Mixedwood-hardwood (N), and Hardwood (H).

From 1986-1990, the Manitoba Forestry Branch conducted regeneration surveys on approximately 33,000 ha throughout Manitoba. Analysis showed that 70 percent of the area surveyed was satisfactorily regenerated (SR) to the forest regeneration standards adopted in 1991. The analysis confirmed that softwood sites account for most of the not satisfactorily regenerating (NSR) area and indicated the types of forest cover that were emerging on harvested areas (Figure 12).

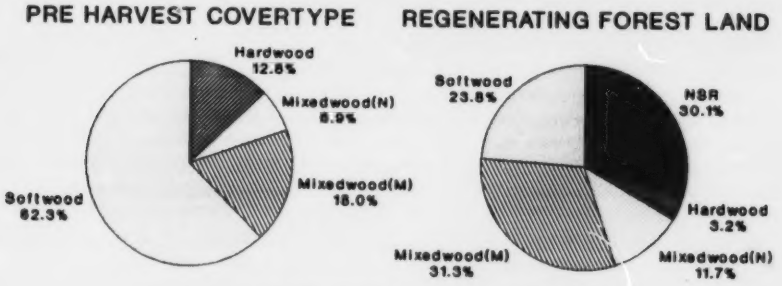


Figure 12: Forest Development — All Sites.

The NSR area, however is not without some forest regeneration. Further analysis showed that over 90 percent of the total area surveyed was stocked to a level greater than or equal to 55 percent total stocking (Figure 13).

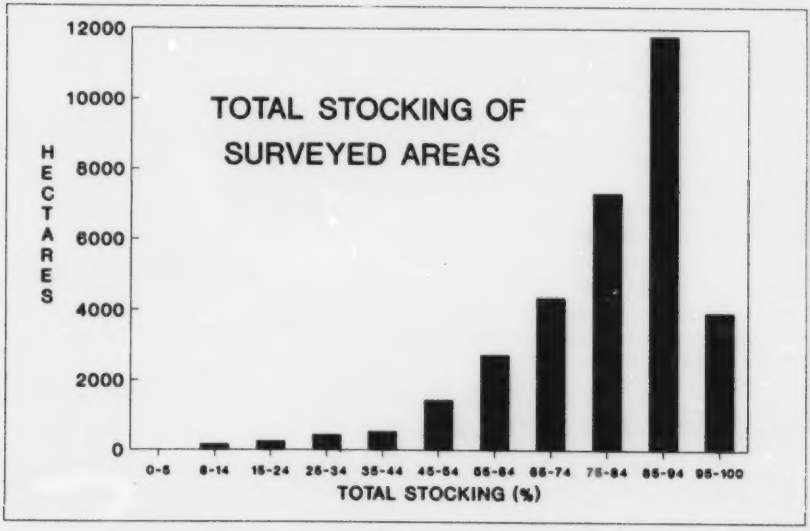


Figure 13: Total Stocking of Surveyed Areas.

Industrial Check Surveys

A requirement of the Forest Management Agreements with Abitibi-Price Inc. and Repap Manitoba is to: *"provide the Company with a Certificate of Reforestation for those sites which have been identified by the regeneration survey as having attained the reforestation standards and have been verified as such by an appointed representative of the Director of Forestry"*. Such Certificates of Reforestation have been awarded since 1987.

Using the four regeneration standards which will be applied in 1991, Forestry Branch surveys have confirmed satisfactory regeneration on 68.5% (4,970 ha) of the areas surveyed by Abitibi-Price Inc. and on 77.5% (13,675 ha) of the area surveyed by Repap Manitoba since 1987 (see Volume 2). Certificates of Reforestation for areas surveyed since 1987 will be issued to reflect the attainment of satisfactory regeneration to current standards.

Regeneration Performance Assessment

The Regeneration Performance Assessment Program was initiated in 1986 to measure the growth of planted and naturally regenerating seedlings and the impact of silvicultural treatments. Permanent sample plots were established that year. Subsequently,every three years survival, height, stem diameter, and the number of stems per hectare of planted and naturally regenerating softwoods have been recorded. The establishment and growth of hardwood seedlings are recorded in a similar manner.

Approximately 600 plots are being maintained, with 200 remeasured each year. As more knowledge of the growth and development of regenerating forest stands is gained, these data will be used in refining regeneration standards, in identifying preferred silvicultural treatments, and in predicting forest development. In particular, information from this program and other research will be valuable when *Free-To-Grow* standards are developed. *Free to Grow* refers to the stage of development at which trees are no longer hampered by competing vegetation, e.g. grasses and shrubs. *Free-To-Grow* standards would be the benchmark measurements against which growth of a young forest would be compared. Meeting these standards should ensure the continued growth of the forest stand. Formulation of *Free-To-Grow* standards is anticipated to occur within the next five years.

Northern Manitoba Field Trial

Initiated in 1990, this research program is aimed at determining the best time to release the softwood crop from competition (e.g. trembling aspen) on moderate and heavily competitive sites. The optimal times for release will be identified for white spruce, black spruce and jack pine. Competition from trembling aspen represents the most serious long-term problem affecting the survival and growth of these commercially important softwood seedlings.

Each year a portion of the study area will be released from competition by an aerial application of the herbicide Vision®. Each year the Silviculture section will measure the crop species and competing vegetation throughout the study area. Periodic progress reports and a final report in 1997 will discuss the necessity, benefits and timing of release treatments.

Silviculture Statistics

This program involves gathering, compiling and presenting provincial forest renewal statistics. Information is obtained from Forest Management, silviculture surveys, provincial regional offices, Abitibi-Price Inc. and Repap Manitoba.

These records of forestry activity are provided to Forestry Canada as Manitoba's contribution to the National Forestry Database Program, are used in internal reports, and are released periodically in response to other requests.

1981-1986 Versus 1986-1990

During the period under review, forest renewal activities increased significantly compared with the previous reporting period. Several factors contributed to this success. Forest renewal treatments increased by 47% over the total area treated in the previous five years, up to 40,140 ha. Over the past five years the area planted in Manitoba almost tripled. Completion of the Clearwater Provincial Forest Nursery and expansion of the Pineland Provincial Forest Nursery have been instrumental in the expanded planting program.

During the same period, scarification for natural regeneration decreased to about 1,700 ha, down 33% from the previous period. Increased planting enabled reducing the use of scarification to the sites where it most effective.

Snow caching, contract tree planting and the tree improvement program were all expanded during the review period to streamline and improve Manitoba's reforestation program. To ensure that our forest investment is protected, stand tending programs need to be expanded in the next 5 years. Research will be conducted over the next five years to determine optimal release times for white spruce, black spruce and jack pine.

During the review period, regeneration surveys increased by over 50% from the previous five years to 33,000 ha. The expanded data base resulting from the surveys allowed for large-scale analysis of regeneration trends throughout the province. Data showed that 70% of the surveyed areas are satisfactorily regenerated. Over the next five years, the database will be broadened even further to provide more precise information about forest regeneration in Manitoba.

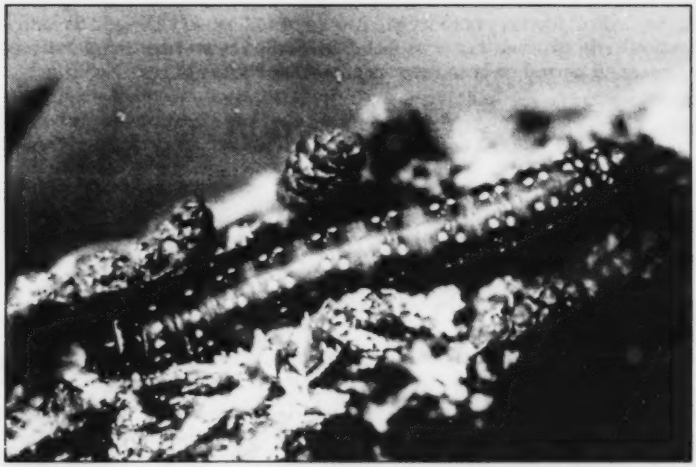
In 1986, the Regeneration Performance Assessment Program was initiated to measure the growth rates of various regeneration treatments. Approximately 600 plots were established for periodic monitoring. The data from these assessment plots will be used to help develop *Free-to-Grow* standards for all areas regenerated in Manitoba.

FOREST PROTECTION

The Forest Protection Section is responsible for the protection of Crown-owned timber throughout Manitoba, and on the Forest Management Licenses of both Abitibi-Price and Repap Manitoba. Its primary mandate is to minimize the destructive impact of insect and disease pests on the forest resource. In 1989, the section broadened its mandate to include development and delivery of improved fire prediction technologies and planning. Responsibility for fire detection, suppression and public education is held by the Regional Services Branch.

Disease and Insect Management

Forest Protection provides site-specific management recommendations based on pest population survey and potential economic damage estimates. Fully integrated pest management strategies are implemented in co-operation with regional forestry staff.



The section is divided into four units; pest survey unit, applied research unit, fire prediction and planning unit and operational pest control unit. The pest survey unit conducts provincewide surveys of pest infestations, and prescribes appropriate management methods. This unit also conducts damage appraisal studies in areas of intense pest activity, e.g. spruce budworm or dwarf mistletoe. Table 11 shows the level of infestation of major forest pests in Manitoba from 1986 to 1990. The applied research unit assesses the economic and technological impacts of various pest control operations. The pest control unit is responsible for delivering the urban forestry program (including the integrated Dutch Elm disease program). This unit also implements all large-scale insect, disease or competing vegetation reduction programs (e.g. aerial application of biological insecticide for spruce budworm management).

The fire management unit delivers new fire prediction and assessment technologies aimed at increasing the level of fire suppression efforts and decreasing fire management costs. Implementation of the Intelligent Fire Management Decision Support System is one such example. This unit is also spearheading the use of geographic information systems to more effectively allocate firefighting resources.

Jack Pine Budworm

The most recent jack pine budworm infestation peaked in 1985 (over 2 million ha), declining drastically from 1985 to 1990. In 1986, about 26,500 ha of high-value commercial forest were aerially treated with the biological insecticide *Bacillus thuringiensis (Bt)* in the Sandilands, Cat Hills and Belair Provincial Forests, and in the Cowan and Kississing Lakes areas.

In 1987, a damage appraisal survey was done in the Thompson area where severe defoliation in 1984 and 1985 had caused extensive top kill and whole tree mortality. The survey indicated a 15.5% volume loss had occurred, and that an additional 9% would be lost over the next few years. The applied research unit has been evaluating new and more accurate monitoring methods to assess jack pine budworm population growth in the field, including egg mass collection and counts, and a large-scale program to assess the efficiency of adult pheromone traps. Prompt and accurate predictions of outbreak populations are essential to jack pine budworm management. Populations have remained at very low levels from 1987 through 1990.

Dwarf Mistletoe

A systematic, comprehensive aerial survey for lodgepole pine dwarf mistletoe on jack pine was implemented from 1986 to 1989. Severity and nature of infection were assessed over 29,000 km^2. Approximately 140,000 ha of mature jack pine forest cover were aerially surveyed; 12,000 ha or 9% of this area was infested. Whole tree loss has been estimated between 53% and 70%. This survey tended to underestimate the total impact of dwarf mistletoe because losses to cull or deformity, losses in immature stands and losses in stands in which jack pine is a smaller component were not considered. Dwarf mistletoe has a significant impact on forest productivity in the jack pine forests of central Manitoba. Whole tree loss was expressed as a percentage of the net operable volume of the surveyed management units, and ranged as high as 20% for one of the units.

Sanitation treatments for removal of dwarf mistletoe during the report period consisted of post-harvesting treatments, salvage logging and sanitation thinning and pruning in juvenile stands. Dwarf mistletoe research included development of a volume loss simulator model in jack pine, and funding for a graduate student at the University of Manitoba to develop data on the biology of mistletoe in Manitoba.

Forest Tent Caterpillar

Populations of forest tent caterpillar remained low in most areas of the province during the reporting period.

Spruce Budworm

The spruce budworm infestation in eastern Manitoba continued during the period under review. Areas experiencing moderate to severe defoliation ranged from a low of 15,540 ha in 1987 to a high of 58,000 ha in 1989 . Extensive mortality of balsam fir and less extensive mortality to white spruce was documented. The amount of salvage during the report period harvesting has been considerable, especially within the Abitibi-Price's FML area. The biological insecticide *Bacillus thuringiensis* was aerially applied in each year of the reporting period to high-value recreation and/or commercial forests within Whiteshell and Nopiming Provincial Parks, and on the Abitibi-Price Forest Management License area, to suppress spruce budworm populations. Applications of *Bt* suppressed spruce budworm to below economic thresholds in most of the areas treated.

Dutch Elm Disease

The Dutch Elm disease program is regulated by its own act, and is implemented in more than 50 rural and urban municipalities including the City of Winnipeg. As mentioned previously, Forest Protection manages an urban forestry program centred on the integrated Dutch Elm disease program. The program aims to conserve elm in communities where it constitutes the major shade tree species. By entering into a cost-shared program, municipalities assist the province in minimizing the impact of the disease. The goal of the provincial program is to keep the average annual loss of elms in cost-shared communities below 2%. In 1990, a cost-benefit analysis of the entire provincial program since its inception was carried out by Forest Protection. Results indicated the urban elm forests of 50 Manitoba cities and towns were valued at $1.1 billion. In 1990, the Province of Manitoba spent close to $2.1 million to manage Dutch Elm disease within a 100,000 km^2 area. This expenditure represents approximately 2% of the value of the elm trees currently being protected in the provincial inventory. Since the discovery of Dutch Elm disease in Manitoba in 1975, the average annual elm loss rate in 50 cities and towns has been 1.8%. If the Dutch Elm disease program were discontinued or partially reduced to allow even a doubling in the annual loss rate, the result would be catastrophic. It is projected that over the next decade Manitobans would face a $25 million tree removal bill, $28

TABLE 11
FIVE-YEAR PEST SURVEY RESULTS

area in ha

Forest Pest	1986		1987		1988		1989		1990	
	Infested	Treated	Infested	Treated	Infested	Treated	Infested	Treated	Infested	Treated
Spruce Budworm	34318[1]	605	15540	536	33670	1182	58016	4984	18985	5000
Jack Pine Budworm	132000	26500	100	–	10	–	10	–	10	–
Forest Tent Caterpillar	19500	–	4403	–	55685	–	325045	–	30718	–
Dwarf Mistletoe	–[2]	195	–	945	–	–	12000	–	12000	–
White Pine Weevil	–[3]	200	–	335	–	436	–	–	–	–

1. Survey totals included both ground and aerial survey data.
2. Areas treated during 1986-1988 were limited to known infestations. The province-wide survey was completed in 1989.
3. Site specific treatments were made in areas of known infestation.

million for replacement trees, a significant decline in real estate values and near disappearance of the urban forests in many towns and cities. In simple economic terms, the provincial Dutch Elm disease management program is an excellent investment in mitigating the effects of the disease. Figure 14 shows the number of elms removed by the provincial and City of Winnipeg sanitation programs since 1980. Figure 15 shows the value of buffer zones around communities that are situated on one or more rivers. Sanitation in buffer zones along rivers and creeks outside of communities greatly reduces the incidence of Dutch elm disease in the community. In 1990, a 13-minute VHS video was produced for public and technical circulation highlighting Dutch elm disease management in Manitoba.

Pests of Renewed Forests

Pest assessment in renewed forests was initiated by the applied research unit beginning in 1987, and from 1987 to 1990, 122 renewed forest stands were assessed (4,685 ha) in the southeastern and western regions of the province. The major problems encountered in renewed forests in the western region included rabbit browse and competing vegetation in white spruce; hail damage in jack pine and Siberian larch; Warren root collar weevil, western gall rust, terminal weevil and dwarf mistletoe in jack pine; and Hypoxylon canker and large aspen tortrix in aspen stands. In the southeast region the major problems included main stem cankering and tip dieback in red pine; spruce budworm in white spruce; and j-rooting, western gall rust, Armillaria root rot, blowdown and top-kill in jack pine.

Fire Management

Wildfire management in the province is handled by the Regional Services Branch. During the period covered by this review, significant fire and weather greatly influenced the fire management program. The most significant was an ongoing drought which reached peak severity in the summer of 1989.

As a result of the drought and hot, windy weather, 1989 chalked up a catastrophic fire season with a record number of fires (1226), record suppression costs (over $63 million) and record forest losses (over 3.6 million ha). Several reviews, including public hearings, and internal and external review boards followed. As a result of these inquiries, the following changes and improvements have been implemented.

Prevention

The provincial fire prevention program was adjusted to better protect communities along the urban/wildland interface. Emphasis was placed on public contact. Four seasonal fire prevention patrollers have been hired to work with approximately four

Figure 14:
Elm Tree Removal by Winnipeg and Provincial Sanitation Programs

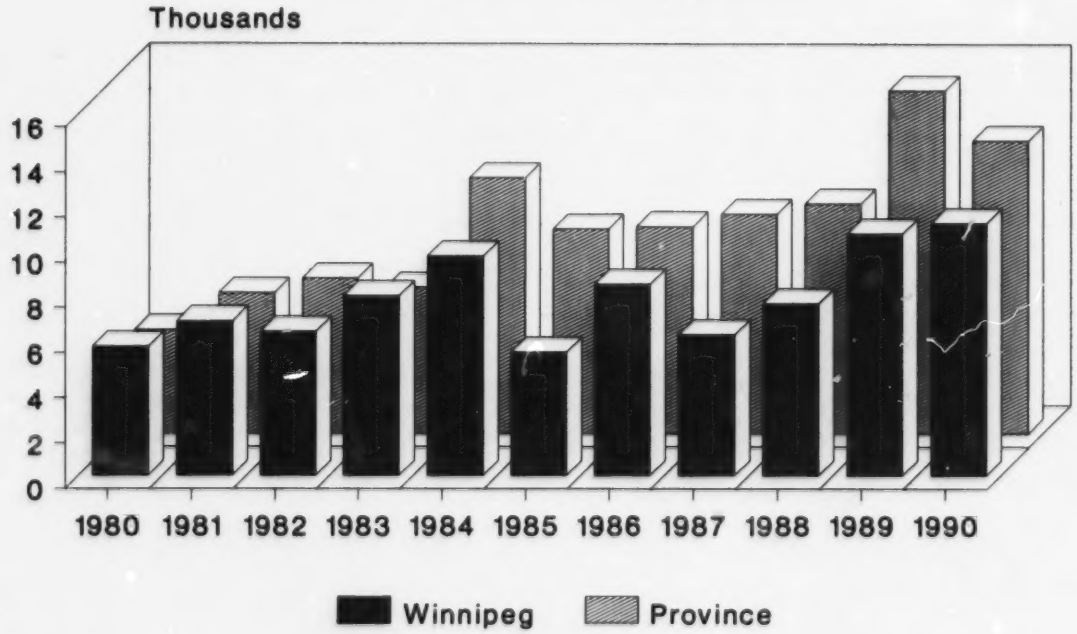
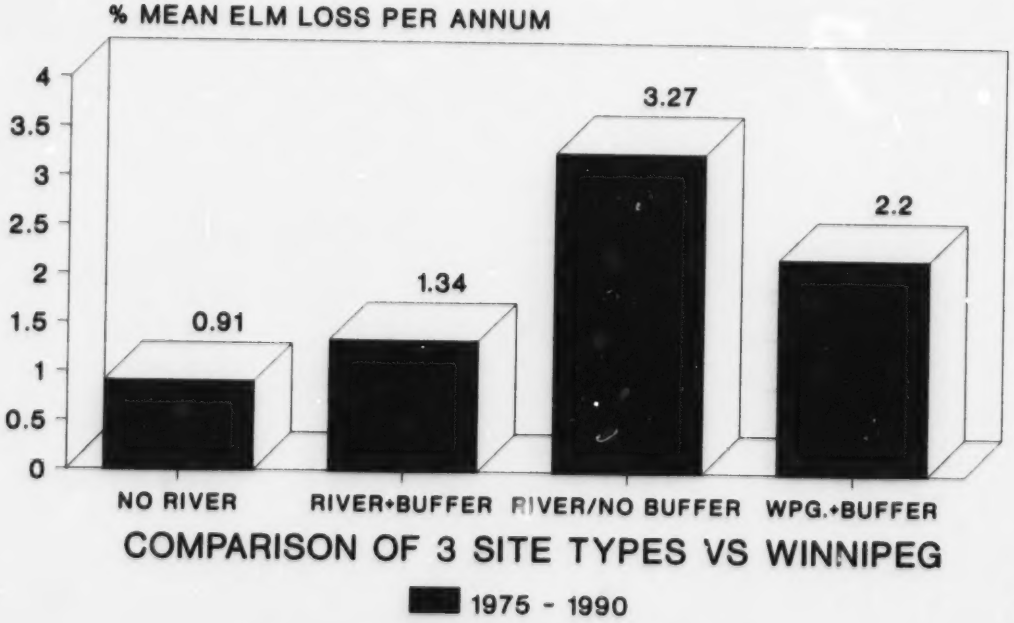


Figure 15:
Manitoba Mean Elm Loss Rate1975-1990
Importance of Community Buffer Zones



NOTE: DATA IS AVERAGED FOR 50 TOWNS/CITIES.

hundred fire guardians, local government and other interested groups. Additional promotional materials were produced and distributed with the primary focus on fire reporting including use of a 1-800-TIP phone number for fire reporting. One part-time staff person was added to headquarters to spearhead and coordinate the accelerated prevention program.

Detection

Early detection of forest fires small enough to ensure successful suppression continued to be a high priority. Fire staff used fixed lookout towers in high-use areas, together with aircraft patrols, and helicopter flights with suppression crews on board to detect new fires. The tracking of lightning has improved, with the addition of two lightning locator sites and the improved use of computers to plot storm paths. This information is used to plan and dispatch detection patrols and redeploy suppression resources.

Pre-Suppression

Pre-suppression activities continued, with an emphasis on training of Initial Attack Crews and training and certifying emergency firefighters. The Intelligent Fire Management Information System (IFMIS), was implemented. IFMIS combines the inventory of forest fuel types, actual and forecasted weather conditions and expected fire behaviour to suggest an optimum deployment of suppression resources. This information is used in conjunction with the Alert Response System (which was further refined during this review period) to allow fire management staff to preposition resources to meet expected wildfire conditions.

Recognizing the large contribution the forest industry makes to the provincial economy, the Forestry Branch created a Fire Management Forester position during 1990. This person aids in fire preparedness planning, delivering IFMIS, and in assisting the two large forest companies protect their investments and values-at-risk. A valuable tool in determining values-at-risk is the provincial resource priority map which is used to assist with resource deployment based on all forest resource values. Refinement of this map is anticipated to continue.

This review period has also seen many equipment acquisitions and improvements, including conversion of all fire hose to 'quick-connect' couplings, refitting of CL-215's with foam and nose wheel steering kits, development of 6-to-100 person mobile warehouses, use of foam in ground operations, expanded weather and forecasting systems and improved financial control systems.

Suppression

The focus of activity in this area has been primarily on increasing the number of successful initial attacks. This has involved extensive training and deployment of Initial Attack Crews into high risk areas. Systems have been developed to ensure increased cooperation and use of regional, provincial, national and international resources available for initial attacks and sustained action.

1981-1986 Versus 1986-1990

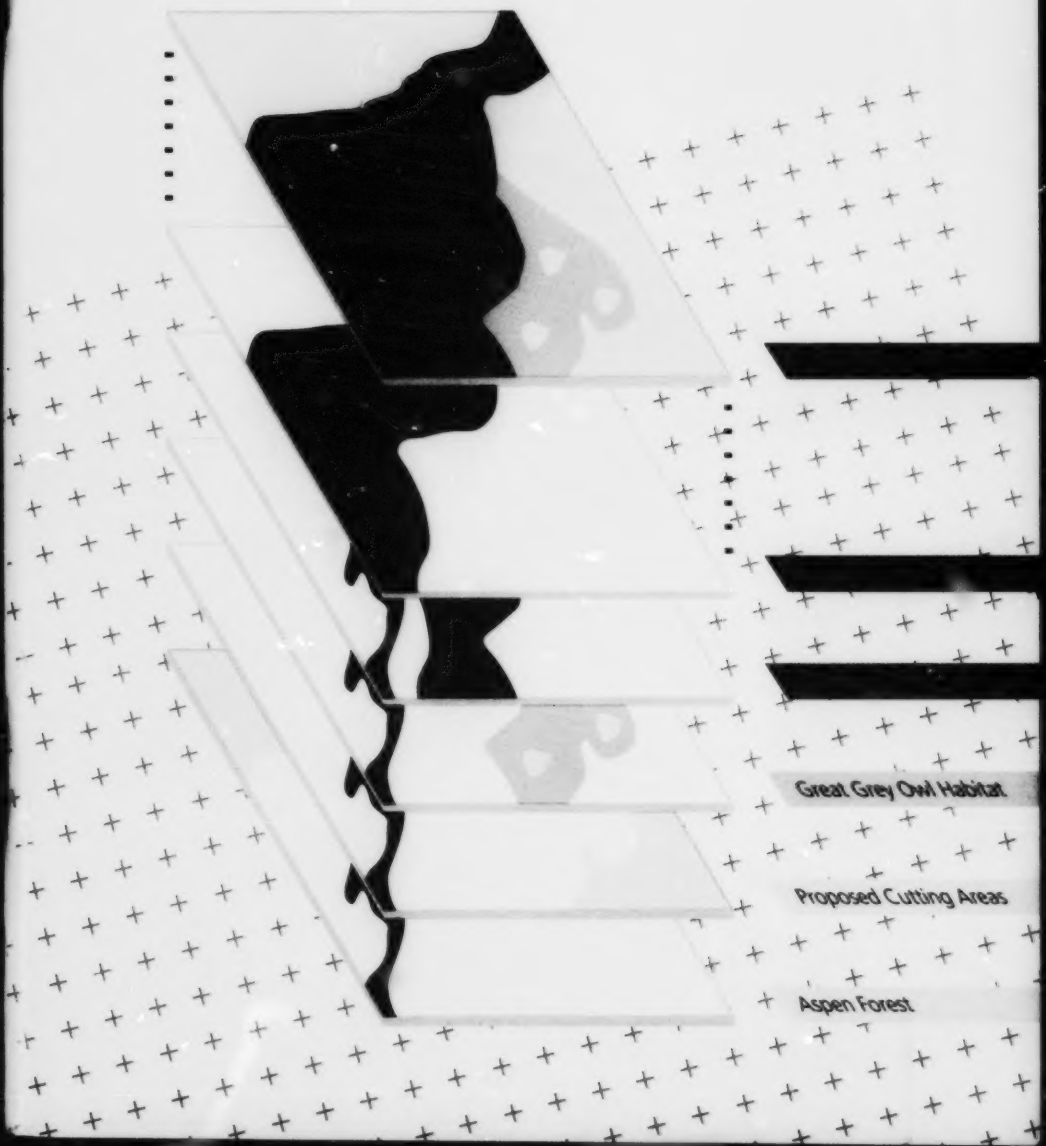
The mandate and roles of the Forest Protection section were developed during the previous five-year period to address forest insect and disease problems in Manitoba's forest resource, and to provide a management framework for urban forestry, i.e. Dutch elm disease management. During the first five years, province wide surveys for all forest insect and disease pests were initiated or expanded. One goal of the expanded survey program was to assess economic thresholds and initiate integrated management programs where applicable e.g. jack pine budworm, forest tent caterpillar, etc. Within the urban forestry component an integrated Dutch elm disease management program was initiated with cost-sharing communities to maintain the loss of elms to less than 2% annually.

It is difficult to compare the success of most activities during the last five-year period with those of the present reporting period, as many of the programs were initiated as a result of findings between 1981 and 1986. However, as recommended during that period, pest damage appraisal programs have been further developed, emphasis has shifted to using biological insecticides, research into new and more environmentally acceptable management techniques was initiated, and efforts to manage Dutch elm disease were continued. A comparative evaluation of these programs will be possible in the next five-year review period.

FIVE YEAR REPORT ON THE STATUS OF FORESTRY

Manitoba
Natural Resources
Forestry

Volume 2: Tables, Charts and Graphs



Manitoba
Natural Resources
Forestry

FIVE-YEAR REPORT ON THE STATUS OF FORESTRY VOLUME 2 (Tables, Charts and Graphs)

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TABLE 1

MANITOBA FOREST AREA SUMMARY BY STATUS AND OWNERSHIP - 1991

(In hectares)

OWNERSHIP	PRODUCTIVE FOREST LAND					FORESTED NON-PROD	NON-FORESTED	TOTAL LAND	WATER	TOTAL	PERCENT FOREST ZN	PERCENT MANITOBA
	POTENTIAL	YOUNG	INTERMED	MATURE	TOTAL							
PROVINCIAL-CLOSED	58,231	73,114	203,314	104,634	439,294	164,669	47,556	651,518	129,582	781,100	2.0%	1.2%
PROVINCIAL-OPEN												
PROV. FOREST, FOREST & PARK	872,973	2,348,848	2,184,370	706,720	6,112,911	5,361,539	612,449	12,086,899	2,352,353	14,439,252	37.3%	22.2%
F.M.L. #1	91,427	97,402	176,633	119,486	484,949	157,289	54,518	696,756	20,440	717,196	1.9%	1.1%
I.W.S.A. #1 & #2	105,114	207,718	355,566	136,121	804,519	626,880	242,383	1,673,781	74,396	1,748,177	4.5%	2.7%
F.M.L. #2	471,629	1,489,643	1,781,682	1,230,545	4,973,498	3,280,112	1,087,382	9,340,992	1,648,677	10,989,669	28.4%	16.9%
INTERNATIONAL NICKEL	9,544	11,741	22,083	15,973	59,341	18,552	9,369	87,263	14,261	101,523	0.3%	0.2%
COMMUNITY PASTURE	1,188	20,874	22,038	7,206	51,306	9,085	101,710	162,101	1,590	163,690	0.4%	0.3%
AGRICULTURE	43,000	123,042	154,809	71,691	392,542	98,799	623,163	1,114,504	176,214	1,290,718	3.3%	2.0%
SUB-TOTAL OPEN	1,594,875	4,299,268	4,697,180	2,287,742	12,879,065	9,552,255	2,730,975	25,162,295	4,287,930	29,450,225	76.0%	45.3%
PROVINCIAL RESTRICTED	12,157	24,062	33,637	33,290	103,147	21,456	39,698	164,300	22,255	186,555	0.5%	0.3%
SUB-TOTAL PROVINCIAL	1,665,263	4,396,444	4,934,131	2,425,666	13,421,505	9,738,380	2,818,229	25,978,113	4,439,766	30,417,879	78.5%	46.8%
FEDERAL	15,739	10,267	48,484	172,345	246,834	16,885	46,678	310,397	12,835	323,232	0.8%	0.5%
MUNICIPAL	217	325	1,099	117	1,758	662	1,222	3,642	0	3,642	0.0%	0.0%
PRIVATE	13,796	193,194	462,113	312,967	982,070	175,604	6,453,360	7,611,034	24,299	7,635,333	19.7%	11.7%
LOCAL GOVERNMENT DISTRICT	7,806	29,090	37,751	21,487	96,135	18,592	49,540	164,266	309	164,575	0.4%	0.3%
INDIAN RESERVE	8,162	26,874	31,933	22,311	89,279	28,518	91,261	209,058	3,952	213,010	0.5%	0.3%
TOTAL FOREST ZONE	1,710,983	4,656,195	5,515,511	2,954,893	14,837,581	9,978,640	9,460,289	34,276,511	4,481,161	38,757,672	100.0%	59.6%
TUNDRA/TRANSITION ZONE	0	0	0	0	0	8,336,565	11,723,540	20,060,105	2,601,784	22,661,889		34.9%
TIDAL FLATS	0	0	0	0	0	0	187,813	187,813	0	187,813		0.3%
MAJOR LAKES	0	0	0	0	0	0	0	0	3,401,386	3,401,386		5.2%
MANITOBA	1,710,983	4,656,195	5,515,511	2,954,893	14,837,581	18,315,205	21,371,642	54,524,429	10,484,331	65,008,759		100.0%
PERCENT PRODUCTIVE	11.5%	31.4%	37.2%	19.9%	100.0%							
PERCENT LAND	3.1%	8.5%	10.1%	5.4%	27.2%	33.6%	39.2%	100.0%				
PERCENT MANITOBA	2.6%	7.2%	8.5%	4.5%	22.8%	28.2%	32.9%	83.9%	16.1%	100.0%		

TABLE 2

FOREST ZONE
AREA SUMMARY BY FOREST SECTION
ALL STATUS AND OWNERSHIPS - 1991

(In hectares)

FOREST SECTION	PRODUCTIVE FOREST LAND							FORESTED NON PRODUCTIVE	NON FORESTED	TOTAL LAND	WATER	TOTAL
	POTENTIAL	REGEN	YOUNG	INTERMED.	MATURE	OVER-MATURE	PRODUCTIVE TOTAL					
ASPEN PARKLAND	7,797.9	44,764.5	105,840.2	335,690.1	200,919.0	40,245.0	735,256.7	143,765.8	5,480,172.1	6,359,194.6	105,732.8	6,464,927.4
MOUNTAIN	164,774.1	54,546.2	201,022.5	458,799.5	384,498.2	228,440.8	1,492,081.3	472,215.4	1,294,376.4	3,258,673.1	233,101.3	3,491,774.4
PINELAND	39,836.2	36,098.3	93,268.5	295,752.0	113,825.3	35,188.6	615,968.9	230,225.3	247,613.0	1,093,807.2	44,444.9	1,138,252.1
LAKE WINNIPEG EAST	338,025.5	120,713.1	279,697.3	815,250.3	333,027.0	59,811.5	1,946,524.7	1,155,647.8	309,523.9	3,411,696.4	281,421.2	3,693,117.6
INTERLAKE	100,892.0	133,977.4	277,168.8	577,582.8	265,159.8	35,311.9	1,390,092.7	679,190.8	980,725.7	3,050,009.2	279,793.2	3,329,802.4
SASKATCHEWAN RIVER	57,468.4	37,741.8	149,945.4	354,508.2	185,204.5	29,297.9	814,166.2	814,972.0	373,263.4	2,002,401.6	638,007.1	2,640,408.7
HIGHROCK	205,296.6	116,513.0	553,474.5	666,661.5	300,217.5	21,884.6	1,864,047.7	1,086,891.2	195,897.8	3,146,836.7	524,011.5	3,670,848.2
CHURCHILL RIVER	124,302.5	351,188.2	644,908.0	493,280.0	51,951.9	2,365.6	1,667,996.2	754,303.5	76,557.3	2,498,857.0	599,400.4	3,098,257.4
NELSON RIVER	215,356.3	176,119.0	513,997.3	605,505.8	293,677.8	68,741.7	1,873,397.9	1,745,879.0	279,144.0	3,898,420.9	601,126.3	4,499,547.2
HAYES RIVER	457,233.7	201,251.8	561,958.3	912,480.7	300,468.0	4,656.6	2,438,049.1	2,895,549.3	223,015.3	5,556,613.7	1,174,122.4	6,730,736.1
TOTAL	1,710,983.2	1,274,913.3	3,381,280.8	5,515,510.9	2,428,949.0	525,944.2	14,837,581.4	9,978,640.1	9,460,288.9	34,276,510.4	4,481,161.1	38,757,671.5

TABLE 3

FOREST ZONE
AREA SUMMARY BY FOREST SECTION
PROVINCIAL CROWN - OPEN - 1991

(In hectares)

FOREST SECTION	PRODUCTIVE FOREST LAND							FORESTED NON PRODUCTIVE	NON FORESTED	TOTAL LAND	WATER	TOTAL
	POTENTIAL	REGEN	YOUNG	INTERMED.	MATURE	OVER-MATURE	PRODUCTIVE TOTAL					
ASPEN PARKLAND	2,662.3	11,945.2	26,334.3	60,121.2	28,054.8	6,908.3	136,026.1	24,208.3	424,526.1	584,760.5	81,987.4	666,747.9
MOUNTAIN	138,796.0	36,908.3	147,203.3	294,864.3	233,884.4	122,855.0	976,511.3	413,286.5	333,843.0	1,723,640.8	211,742.3	1,935,383.1
PINELAND	33,768.9	31,665.4	77,971.1	251,920.1	93,460.1	29,172.6	517,958.2	202,673.5	112,883.6	833,515.3	43,285.0	876,800.3
LAKE WINNIPEG EAST	273,194.8	92,610.4	243,530.3	645,483.6	274,024.2	51,004.8	1,579,848.1	1,032,596.7	266,265.9	2,878,710.7	201,269.9	3,079,980.6
INTERLAKE	92,471.9	113,114.6	231,339.3	469,721.6	201,203.4	32,123.8	1,139,974.6	641,322.1	496,646.2	2,277,942.9	277,613.8	2,555,556.7
SASKATCHEWAN RIVER	56,962.2	37,376.9	146,556.6	346,748.2	179,478.8	28,101.5	795,224.2	804,050.0	342,783.9	1,942,058.1	637,257.0	2,579,315.1
HIGHROCK	203,574.1	115,354.6	545,510.2	631,512.9	278,523.2	18,790.2	1,793,265.2	1,053,974.3	184,807.2	3,032,046.7	473,257.5	3,505,304.2
CHURCHILL RIVER	124,297.6	351,188.2	644,623.1	493,192.6	51,879.8	2,321.9	1,667,503.2	754,250.1	75,697.3	2,497,450.6	599,387.5	3,096,838.1
NELSON RIVER	214,452.2	175,823.7	508,386.4	594,979.0	266,892.3	65,490.7	1,846,024.3	1,734,009.4	271,419.6	3,851,453.3	588,180.7	4,439,634.0
HAYES RIVER	454,695.1	200,752.2	559,073.5	908,636.7	298,915.6	4,656.6	2,426,729.7	2,891,883.8	222,101.7	5,540,715.2	1,173,948.8	6,714,664.0
TOTAL	1,594,875.1	1,168,739.5	3,130,528.1	4,697,180.2	1,926,316.6	361,425.4	12,879,064.9	9,552,254.7	2,730,974.5	25,162,294.1	4,287,929.9	29,450,224.0

TABLE 4
MANITOBA MERCHANTABLE VOLUME SUMMARY - 1991

March 1991

(In Cubic Metres)

OWNERSHIP	SOFTWOOD							HARDWOOD					TOTAL	PER CENT
	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EASTERN CEDAR	TOTAL SOFTWOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD		
PROVINCIAL CLOSED ZONE	8,922,650	6,878,100	1,929,270	813,390	305,380	8,940	18,857,730	6,643,770	592,260	766,420	191,390	8,193,840	27,051,570	4%
PROVINCIAL OPEN ZONE														
PROV. FOREST, FOREST & PARK	69,642,470	86,204,350	6,076,900	3,071,800	5,132,710	687,470	170,815,700	35,276,510	4,512,360	6,361,450	804,190	46,954,510	217,770,210	29%
F.M.L. #1	9,713,790	6,261,440	1,138,580	602,060	1,704,280	0	19,420,170	5,212,110	391,320	556,690	227,420	6,387,540	25,807,710	3%
I.W.S.A. #1 & #2	10,699,520	12,383,000	2,266,970	1,974,580	1,534,460	6,750	28,865,280	12,666,840	1,306,860	1,420,520	46,850	15,441,070	44,306,350	6%
F.M.L. #2 BLK. 1 & 2	62,919,260	113,742,730	27,481,940	3,160,140	145,440	11,360	210,460,890	72,770,720	13,458,450	8,964,270	1,101,910	96,295,350	306,756,240	41%
INTERNATIONAL NICKEL	734,370	2,049,900	238,300	26,150	10,370	0	3,059,090	749,250	77,900	98,650	0	925,800	3,984,890	1%
COMMUNITY PASTURE	3,830	7,660	35,940	1,110	920	0	49,460	1,287,040	157,630	24,700	224,770	1,694,140	1,743,620	0%
AGRICULTURE	172,950	782,460	360,410	69,260	375,340	47,180	1,807,600	7,033,770	1,043,070	203,410	1,117,930	9,398,180	11,205,780	
SUB-TOTAL OPEN ZONE	153,886,190	221,431,580	37,599,040	8,905,120	11,903,520	752,780	434,478,210	134,998,240	20,947,590	17,629,690	3,523,070	177,098,590	611,574,800	82%
PROVINCIAL RESTRICTED ZONE	1,820,110	1,637,110	916,800	147,440	128,880	100	4,450,440	2,419,200	397,770	210,730	114,300	3,142,000	7,592,440	1%
SUB-TOTAL PROVINCIAL	164,428,950	229,946,770	40,445,110	9,865,950	12,337,780	761,820	457,786,380	144,059,210	21,937,820	18,606,840	3,828,760	188,432,430	646,218,810	86%
FEDERAL	860,700	2,310,770	6,605,340	731,040	170,090	4,670	10,682,610	18,814,430	5,084,150	1,593,500	234,630	25,706,710	36,389,320	5%
MUNICIPAL	780	48,740	1,040	530	6,310	470	57,870	30,780	6,910	1,330	1,550	40,570	98,440	0%
PRIVATE	803,280	1,417,800	1,783,170	238,430	279,430	44,810	4,566,920	33,148,510	5,554,630	1,103,910	13,113,370	52,920,420	57,487,340	8%
LOCAL GOVERNMENT DISTRICT	166,750	163,840	172,900	38,320	78,460	16,050	636,310	2,739,410	460,030	119,060	169,870	3,488,360	4,124,700	1%
INDIAN RESERVE	390,760	1,130,900	363,030	123,840	81,430	12,060	2,102,020	2,201,340	333,090	193,540	261,740	2,989,710	5,091,730	1%
TOTAL FOREST ZONE	166,651,220	235,018,820	49,370,590	10,998,110	12,953,490	839,880	475,832,110	200,993,680	33,356,430	21,618,200	17,609,920	273,578,230	749,410,340	100%
PERCENT	22%	31%	7%	1%	2%	0%	63%	27%	4%	3%	2%	37%	100%	

* COMMUNITY PASTURE CLASSIFICATION IS BEING RE-CLASSIFIED TO AGRICULTURE

TABLE 5
MERCHANTABLE VOLUME SUMMARY BY FOREST SECTION
ALL STATUS AND OWNERSHIPS - 1991

(In cubic metres)

FOREST SECTION	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	ASTERN CEDAR	TOTAL SOFTWOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL	PERCENT
ASPEN PARKLAND	125,820	233,530	832,750	7,310	207,650	300	1,407,360	23,941,360	2,822,420	456,570	13,811,430	41,031,780	42,439,140	6%
MOUNTAIN	7,343,000	19,567,060	19,289,260	2,139,610	1,526,430	2,330	49,867,720	63,682,970	17,166,350	5,363,550	1,958,190	88,190,060	138,057,780	18%
PINELAND	4,848,840	9,786,210	938,730	962,780	4,703,910	810,760	22,053,230	11,014,100	2,471,710	1,159,370	621,890	15,267,070	37,320,300	5%
LAKE WINNIPEG EAST	41,455,990	25,908,970	3,345,310	1,950,030	3,473,200	9,490	76,140,990	20,723,170	1,026,320	1,894,140	419,240	24,062,870	100,203,860	13%
INTERLAKE	10,128,650	12,554,070	4,184,520	2,849,420	1,465,880	16,970	31,199,510	26,081,530	3,147,180	2,393,320	434,700	34,056,730	65,256,240	9%
SASKATCHEWAN RIVER	15,095,100	15,425,830	4,693,320	311,410	614,880	30	36,140,570	7,303,070	1,695,830	1,161,690	364,330	10,724,920	46,865,490	6%
HIGHROCK	24,586,290	46,746,220	6,903,200	348,580	465,330	0	79,048,620	15,801,040	1,087,030	2,612,890	140	19,501,100	98,549,720	13%
CHURCHILL RIVER	5,613,890	9,269,390	71,870	420	24,050	0	14,979,620	409,220	35,380	707,920	0	1,152,520	16,132,140	2%
NELSON RIVER	16,462,870	48,556,400	6,704,610	966,020	324,340	0	73,014,240	15,663,990	1,915,300	2,282,210	0	19,861,500	92,875,740	12%
HAYES RIVER	40,990,770	46,972,110	2,407,020	1,462,530	147,820	0	91,980,250	14,373,230	1,769,910	3,586,540	0	19,729,680	111,709,930	15%
TOTAL	166,651,220	235,018,820	49,370,590	10,998,110	12,953,490	839,880	475,832,110	200,993,680	33,356,430	21,618,200	17,609,920	273,578,230	749,410,340	100%
PERCENT	22%	31%	7%	1%	2%	0%	63%	27%	4%	3%	2%	37%	100%	

TABLE 6

OTHER HARDWOODS MERCHANTABLE VOLUME
ALL STATUS AND OWNERSHIPS - 1991

(In cubic metres)

FOREST SECTION	COTTON WOOD	BASSWOOD	MANITOBA MAPLE	ASH	WHITE ELM	LARGE TOOTH	WILLOW	BUR OAK	TOTAL OTHER HARDWOOD
ASPEN PARKLAND	302,890	214,330	1,758,110	3,235,450	2,124,120	0	104,550	6,071,980	13,811,430
MOUNTAIN	22,190	1,280	956,270	308,240	472,480	0	13,070	184,660	1,958,190
PINELAND	0	0	25,300	482,020	97,550	0	0	17,020	621,890
LAKE WINNIPEG EAST	0	0	9,850	354,720	44,710	5,180	0	4,780	419,240
INTERLAKE	480	1,030	135,060	129,350	52,890	0	0	116,890	434,700
SASKATCHEWAN RIVER	0	0	258,550	17,200	88,580	0	0	0	364,330
HIGHROCK	0	0	0	0	0	0	0	140	140
CHURCHILL RIVER	0	0	0	0	0	0	0	0	0
NELSON RIVER	0	0	0	0	0	0	0	0	0
HAYES RIVER	0	0	0	0	0	0	0	0	0
TOTAL	325,560	216,640	3,143,140	4,525,980	2,880,330	5,180	117,620	6,395,470	17,609,920

TABLE 7

MERCHANTABLE VOLUME BY SPECIES AND DIAMETER CLASS ALL OWNERSHIPS - 1991

(In cubic metres)

SPECIES	DIAMETER CLASS						% OF GROUP	% OF TOTAL
	10cm	12cm	14-18cm	20-24cm	26cm+	TOTAL		
JACK PINE	11,237,250	17,730,330	73,137,980	44,622,990	19,922,670	166,651,220	35%	22%
BLACK SPRUCE	33,683,260	40,374,150	109,740,800	39,705,420	11,515,190	235,018,820	49%	31%
WHITE SPRUCE	1,438,050	1,878,400	8,941,620	10,955,580	26,156,940	49,370,590	10%	7%
BALSAM FIR	1,244,850	1,253,810	4,014,420	2,615,190	1,869,840	10,998,110	2%	1%
TAMARACK LARCH	1,394,390	1,842,450	6,104,730	2,700,000	905,920	12,953,490	3%	2%
EASTERN CEDAR	81,840	78,920	301,500	176,960	200,660	839,880	0%	0%
TOTAL SOFTWOOD	49,079,640	63,158,060	202,241,050	100,782,140	60,571,220	475,832,110	100%	63%
%	10%	13%	43%	21%	13%	100%		
TREMBLING ASPEN	8,884,880	13,268,880	61,718,880	58,355,750	58,765,290	200,993,680	73%	27%
BALSAM POPLAR	913,920	1,469,560	7,702,880	8,643,320	14,626,750	33,356,430	12%	4%
WHITE BIRCH	1,924,020	2,510,600	8,378,000	5,036,350	3,769,230	21,618,200	8%	3%
OTHER HARDWOOD	562,220	815,460	3,818,010	4,105,030	8,309,200	17,609,920	6%	2%
TOTAL HARDWOOD	12,285,040	18,064,500	81,617,770	76,140,450	85,470,470	273,578,230	100%	37%
%	4%	7%	30%	28%	31%	100%		
TOTAL ALL SPECIES	61,364,680	81,222,560	283,858,820	176,922,590	146,041,690	749,410,340		100%
% OF TOTAL	8%	11%	38%	24%	19%	100%		

TABLE 8
PRIVATE LAND AREA SUMMARY BY FOREST SECTION

March 31, 1991

(in hectares)

FOREST SECTION	POTENTIAL	REGEN	YOUNG	INTERMED.	MATURE	OVER-MATURE	PRODUCTIVE TOTAL	FORESTED NON PRODUCTIVE	NON FORESTED	TOTAL LAND	WATER	TOTAL	PRODUCTIVE %	LAND %	WATER %	TOTAL %
ASPEN PARKLAND	2,983.0	29,024.2	64,967.3	256,001.8	163,626.2	27,194.9	543,797.4	105,309.7	4,970,585.7	5,619,692.8	19,301.4	5,638,994.2	55%	74%	79%	74%
MOUNTAIN	3,696.5	7,290.5	35,678.8	96,347.8	44,896.5	8,573.0	196,482.9	33,567.7	883,442.0	1,113,492.6	2,240.8	1,115,733.4	20%	15%	9%	15%
PINELAND	4,404.7	4,664.0	11,231.7	29,804.1	13,573.3	3,160.4	66,838.2	17,454.9	124,264.1	208,557.2	186.5	208,743.7	7%	3%	1%	3%
LAKE WINNIPEG EAST	212.2	482.1	1,123.0	2,810.5	1,636.9	837.2	7,101.9	1,246.8	11,251.5	19,600.2	81.9	19,682.1	1%	0%	0%	0%
INTERLAKE	2,472.2	12,441.4	24,278.2	73,292.8	43,471.5	1,465.5	157,421.6	11,728.5	428,435.7	597,585.8	1,129.0	598,714.8	16%	8%	5%	8%
SASKATCHEWAN RIVER	0.9	51.9	480.6	1,377.9	2,092.1	708.7	4,721.1	4,609.5	27,395.9	36,726.5	85.9	36,812.4	0%	0%	0%	0%
HIGHROCK	6.0	0.0	20.8	18.5	4.4	0.0	49.7	28.1	2,389.6	2,467.4	76.1	2,543.5	0%	0%	0%	0%
CHURCHILL RIVER	0.0	0.0	276.8	46.9	72.1	43.7	439.5	17.8	694.1	1,151.4	0.0	1,151.4	0%	0%	0%	0%
NELSON RIVER	18.8	122.6	1,036.8	2,412.2	1,383.1	227.7	5,201.2	1,632.0	4,889.7	11,722.9	1,197.0	12,919.9	1%	0%	5%	0%
HAYES RIVER	2.1	1.2	13.3	0.0	0.0	0.0	16.6	9.3	11.7	37.6	0.0	37.6	0%	0%	0%	0%
TOTAL PRIVATE	13,796.4	54,077.9	139,116.1	462,112.5	270,756.1	42,211.1	982,070.1	175,604.3	6,453,380.0	7,611,034.4	24,298.6	7,635,333.0	100%	100%	100%	100%
PERCENT PRODUCTIVE	1%	6%	14%	47%	28%	4%	100%									
PERCENT LAND	0%	1%	2%	6%	4%	1%	13%	2%	85%	100%						
PERCENT TOTAL	0%	1%	2%	6%	4%	1%	13%	2%	85%	100%	0%	100%				

TABLE 9
PRIVATE LAND MERCHANTABLE VOLUME SUMMARY
(In Cubic Metres)

FOREST SECTION	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EASTERN CEDAR	TOTAL SOFTWOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	SUB-TOTAL OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL	PER CENT
ASPEN PARKLAND	49,700	144,850	537,520	5,290	44,370	110	781,840	17,797,970	2,226,500	356,900	11,891,950	32,273,320	33,055,160	57%
MOUNTAIN	94,350	224,010	587,580	39,930	48,890	30	994,790	7,563,540	2,330,730	395,780	853,360	11,143,410	12,138,200	21%
PINELAND	316,910	490,460	109,010	116,580	159,490	44,350	1,236,800	2,067,260	443,470	171,420	145,220	2,827,370	4,064,170	7%
LAKE WINNIPEG EAST	62,270	86,990	42,220	23,060	9,390	200	224,130	248,350	25,310	18,740	25,780	318,180	542,310	1%
INTERLAKE	169,080	143,860	425,660	48,740	15,050	120	802,510	5,208,630	442,250	137,200	168,000	5,956,080	6,758,590	12%
SASKATCHEWAN RIVER	58,700	110,490	56,820	1,970	1,140	0	229,120	175,560	77,700	12,910	29,060	295,230	524,350	1%
HIGHROCK	350	420	30	0	10	0	810	1,230	0	30	0	1,260	2,070	0%
CHURCHILL RIVER	3,610	2,740	0	0	0	0	6,350	570	0	170	0	740	7,090	0%
NELSON RIVER	48,310	213,980	24,330	2,860	1,090	0	290,570	85,400	8,670	10,760	0	104,830	395,400	1%
HAYES RIVER	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
TOTAL	803,280	1,417,800	1,783,170	238,430	279,430	44,810	4,566,920	33,148,510	5,554,630	1,103,910	13,113,370	52,920,420	57,487,340	100
PERCENT	1%	2%	3%	0%	0%	0%	8%	58%	10%	2%	23%	92%	100%	

TABLE 10

PRESENT WOOD SURPLUSES BY FOREST SECTION - 1991 PROVINCIAL CROWN LAND - OPEN

(Volume in Cubic Metres per Year)

FOREST SECTION	SOFTWOODS (m3)				HARDWOODS (m3)				TOTAL (m3)			
	ANNUAL ALLOWABLE HARVEST (AAC)	CURRENT HARVEST	INDICATED SURPLUS	SURPLUS AS A % OF (AAC)	ANNUAL ALLOWABLE HARVEST (AAC)	CURRENT HARVEST	INDICATED SURPLUS	SURPLUS AS A % OF (AAC)	ANNUAL ALLOWABLE HARVEST (AAC)	CURRENT HARVEST	INDICATED SURPLUS	SURPLUS AS A % OF (AAC)
ASPEN PARKLAND	2,360	186	2,174	92%	59,600	3,707	55,893	94%	61,960	3,893	58,067	94%
MOUNTAIN	402,180	322,024	80,156	20%	578,290	35,583	542,707	94%	980,470	357,607	622,863	64%
PINELAND	222,230	117,105	105,125	47%	139,600	58,091	81,509	58%	361,830	175,196	186,634	52%
LAKE WINNIPEG EAST	774,410	324,612	449,798	58%	215,220	45,289	169,931	79%	989,630	369,901	619,729	63%
INTERLAKE	450,040	71,583	378,457	84%	343,050	7,148	335,902	98%	793,090	78,731	714,359	90%
SASKATCHEWAN RIVER	484,410	330,218	154,192	32%	118,890	2,917	115,973	98%	603,300	333,135	270,165	45%
HIGHROCK	967,930	227,214	740,716	77%	250,080	2,031	248,049	99%	1,218,010	229,245	988,765	81%
CHURCHILL RIVER	81,790	0	81,790	100%	7,040	0	7,040	100%	88,830	0	88,830	100%
NELSON RIVER	952,440	202,216	750,224	79%	247,610	2,742	244,868	99%	1,200,050	204,958	995,092	83%
HAYES RIVER	1,608,410	0	1,608,410	100%	351,810	0	351,810	100%	1,960,220	0	1,960,220	100%
TOTAL	5,946,200	1,595,158	4,351,042	73%	2,311,190	157,508	2,153,682	93%	8,257,390	1,752,666	6,504,724	79%

Curent harvest is average over 5 year period 1986 to 1991

TABLE 11

INDICATED PRESENT WOOD SURPLUS BY SPECIES WORKING GROUPS PROVINCIAL CROWN LAND - OPEN - 1991

(Volumes in cubic metres per year)

SPECIES WORKING GROUP	ANNUAL ALLOWABLE HARVEST (AAC)	CURRENT HARVEST	INDICATED SURPLUS	SURPLUS AS A % OF (AAC)
JACK PINE	2,456,570	583,215	1,873,355	23%
SPRUCE	3,305,660	999,626	2,306,034	28%
BALSAM FIR	125,920	8,398	117,522	1%
OTHER SOFTWOODS	58,050	3,918	54,132	1%
TOTAL SOFTWOODS	5,946,200	1,595,157	4,351,043	53%
TREMBLING ASPEN AND BALSAM POPLAR	2,054,800	133,817	1,920,983	23%
OTHER HARDWOODS	256,390	23,691	232,699	3%
TOTAL HARDWOODS	2,311,190	157,508	2,153,682	26%
TOTAL	8,257,390	1,752,665	6,504,725	79%

Curent harvest is average over 5 ycar period 1986 to 1991

TABLE 12

FIFTEEN YEAR AVERAGE WILDFIRE LOSS
1976 - 1990 INCLUSIVE
BY FOREST SECTION AND PRODUCTIVITY CLASS
FOR ALL LAND OWNERSHIPS AS REPORTED

(Area in hectares)

	FOREST SECTION										
PRODUCTIVITY CLASS	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PRODUCTIVE FOREST -											
MATURE	76	2,054	232	5,149	3,435	2,589	5,762	445	2,239	5,992	27,974
INTERMEDIATE	215	2,107	667	15,014	11,021	4,771	15,281	5,591	7,663	17,597	79,927
YOUNG	511	2,709	881	11,195	11,177	1,781	11,888	9,524	8,611	16,402	74,680
TOTAL PRODUCTIVE	803	6,870	1,780	31,359	25,633	9,142	32,930	15,560	18,513	39,992	182,581
FORESTED NON PRODUCTIVE	398	2,899	796	12,148	8,470	7,386	15,297	6,155	13,335	39,028	105,901
NON - FORESTED	3,655	5,985	2,488	2,029	13,298	2,584	1,795	638	1,504	2,417	36,392
TOTAL LAND AREA	4,856	15,744	5,063	45,535	47,401	19,111	50,022	22,353	33,352	81,437	324,874

TABLE 13

LAST FIVE YEAR AVERAGE WILDFIRE LOSS
1986 - 1990 INCLUSIVE
BY FOREST SECTION AND PRODUCTIVITY CLASS
FOR ALL LAND OWNERSHIPS AS REPORTED

(Area in hectares)

	FOREST SECTION										
PRODUCTIVITY CLASS	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PRODUCTIVE FOREST -											
MATURE	117	384	213	7,641	9,459	6,333	11,966	785	5,376	13,955	56,229
INTERMEDIATE	272	1,495	813	23,151	22,993	10,490	31,285	10,334	18,635	41,410	160,878
YOUNG	386	5,678	668	18,460	22,837	2,940	25,628	16,986	17,835	40,840	152,259
TOTAL PRODUCTIVE	774	7,557	1,695	49,252	55,288	19,763	68,879	28,106	41,847	96,205	369,366
FORESTED NON PRODUCTIVE	306	3,338	459	20,669	21,722	18,843	33,224	8,860	29,708	99,596	236,746
NON - FORESTED	2,518	1,867	1,854	2,976	23,349	6,264	4,175	946	3,221	6,060	53,230
TOTAL LAND AREA	3,598	12,762	4,008	72,897	100,359	44,870	106,278	37,932	74,776	201,861	659,342

TABLE 14

FIFTEEN YEAR AVERAGE WILDFIRE LOSS
1976 - 1990 INCLUSIVE
BY FOREST SECTION AND PRODUCTIVITY CLASS
FOR ALL LAND OWNERSHIPS AS REPORTED
MERCHANTABLE VOLUME

(In cubic metres)

March 1991

SPECIES WORKING GROUP	FOREST SECTION: ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	SASKATCHEWAN INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
JACK PINE	450	228,702	8,686	778,311	111,239	239,941	516,473	62,587	165,242	823,011	2,934,643
SPRUCE	6,168	183,293	16,688	538,902	320,430	223,030	1,089,313	90,415	498,215	1,008,439	3,974,894
FIR	17	4,477	951	36,083	47,591	2,108	5,425	0	6,782	21,308	124,753
OTHER SOFTWOODS	838	6,220	6,561	31,713	19,972	6,396	3,786	193	1,899	2,167	79,745
TOTAL SOFTWOODS	7,473	422,693	32,886	1,385,009	499,232	471,475	1,614,997	153,196	672,147	1,854,926	7,114,035
POPLAR	10,222	144,219	32,243	319,395	531,183	55,405	318,440	2,281	124,431	235,303	1,773,121
OTHER HARDWOODS	2,241	10,417	3,528	30,847	41,745	9,867	49,058	6,100	18,561	56,735	229,099
TOTAL HARDWOODS	12,463	154,635	35,771	350,243	572,927	65,271	367,498	8,381	142,992	292,037	2,002,220
TOTAL	19,936	577,328	68,657	1,735,252	1,072,159	536,747	1,982,495	161,577	815,139	2,146,963	9,116,255

TABLE 15
LAST FIVE YEAR AVERAGE WILDFIRE LOSS
1986 - 1990 INCLUSIVE
BY FOREST SECTION AND PRODUCTIVITY CLASS
FOR ALL LAND OWNERSHIPS AS REPORTED
MERCHANTABLE VOLUME

(In cubic metres)

March 1991

SPECIES WORKING GROUP	FOREST SECTION										
	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	SAKATCHEWAN INTERLAKE	SAKATCHEWAN RIVER	SAKATCHEWAN HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
JACK PINE	38	17,006	18,414	1,238,542	287,732	543,066	1,034,678	112,948	437,964	1,987,714	5,678,102
SPRUCE	1,584	33,744	9,236	759,144	756,264	595,972	2,172,070	172,190	1,214,144	2,241,896	7,956,244
FIR	26	1,372	946	52,006	138,224	6,084	10,808	0	16,158	45,064	270,688
OTHER SOFTWOODS	640	14,478	6,184	43,460	55,234	17,086	8,696	364	4,480	5,396	156,018
TOTAL SOFTWOODS	2,288	66,600	34,780	2,093,152	1,237,454	1,162,208	3,226,252	285,502	1,672,746	4,280,070	14,061,052
POPLAR	19,442	55,846	39,164	483,464	1,160,116	147,724	678,630	4,862	304,356	558,478	3,452,082
OTHER HARDWOODS	4,460	5,218	3,626	44,512	104,206	26,548	101,630	12,242	44,860	131,292	478,594
TOTAL HARDWOODS	23,902	61,064	42,790	527,976	1,264,322	174,272	780,260	17,104	349,216	689,770	3,930,676
TOTAL	26,190	127,664	77,570	2,621,128	2,501,776	1,336,480	4,006,512	302,606	2,021,962	4,969,840	17,991,728

TABLE 16

WILDFIRE AREA LOSSES BY FOREST SECTION
ALL STATUS AND OWNERSHIPS

(Area in hectares)

Forest Zone
All Ownerships
All Reported Fires

FOREST SECTION	YEAR	PRODUCTIVE AREA							FORESTED NON PRODUCT.	NON FORESTED	TOTAL LAND
		POTENT.	REGEN.	YOUNG	INTERM.	MATURE	OVERMAT.	TOTAL PRODUCT.			
ASPEN	1986	0.0	0.2	0.2	2.5	0.0	0.0	2.9	0.0	0.0	2.9
PARKLAND	1987	0.4	0.0	4.8	9.1	22.7	0.0	37.0	6.0	29.6	72.6
	1988	120.9	254.1	643.5	820.0	144.8	9.7	1,993.0	783.8	9,009.1	11,785.9
	1989	38.4	149.4	326.3	383.2	259.2	27.2	1,183.7	493.1	1,889.2	3,566.0
	1990	29.2	216.9	143.5	144.6	121.1	0.0	655.3	245.5	1,662.9	2,563.7
	TOTAL	188.9	620.6	1,118.3	1,359.4	547.8	36.9	3,871.9	1,528.4	12,590.8	17,991.1
	5yr Avg.	37.8	124.1	223.7	271.9	109.6	7.4	774.4	305.7	2,518.2	3,598.2
MOUNTAIN	1986	0.0	0.0	1.6	12.0	5.5	0.1	19.2	3.7	36.0	58.9
	1987	28.2	12.0	78.7	105.4	99.0	24.1	347.4	104.3	474.4	926.1
	1988	46.7	1.0	117.9	66.6	117.7	5.4	355.3	157.3	67.4	580.0
	1989	5,579.9	5,102.7	17,411.6	7,275.8	1,469.8	180.0	37,019.8	16,425.0	8,724.1	62,168.9
	1990	5.8	0.0	4.8	16.5	18.1	0.2	45.4	0.9	30.6	76.9
	TOTAL	5,660.6	5,115.7	17,614.6	7,476.3	1,710.1	209.8	37,787.1	16,691.2	9,332.5	63,810.8
	5yr Avg.	1,132.1	1,023.1	3,522.9	1,495.3	342.0	42.0	7,557.4	3,338.2	1,866.5	12,762.2
PINELAND	1986	0.0	4.6	0.1	3.3	0.5	0.0	8.5	2.0	1.1	11.6
	1987	787.3	134.1	621.0	1,701.9	284.1	36.4	3,564.8	951.2	2,774.4	7,290.4
	1988	240.3	555.3	605.0	1,674.7	364.3	81.5	3,521.1	711.2	1,920.5	6,152.8
	1989	63.7	58.9	170.7	512.5	150.7	123.1	1,079.6	524.2	3,004.4	4,608.2
	1990	3.0	5.2	92.9	174.4	25.2	0.4	301.1	104.8	1,569.9	1,975.8
	TOTAL	1,094.3	758.1	1,489.7	4,066.8	824.8	241.4	8,475.1	2,293.4	9,270.3	20,038.8
	5yr Avg.	218.9	151.6	297.9	813.4	165.0	48.3	1,695.0	458.7	1,854.1	4,007.8

TABLE 16

WILDFIRE AREA LOSSES BY FOREST SECTION
ALL STATUS AND OWNERSHIPS

(Area in hectares)

Forest Zone
All Ownerships
All Reported Fires

FOREST SECTION	YEAR	PRODUCTIVE AREA							FORESTED NON PRODUCT.	NON FORESTED	TOTAL LAND
		POTENT.	REGEN.	YOUNG	INTERM.	MATURE	OVERMAT.	TOTAL PRODUCT.			
LAKE	1986	2.4	0.4	43.8	27.4	3.7	0.0	77.7	14.1	6.6	98.4
WINNIPEG	1987	1,103.7	697.1	9,146.3	13,853.5	2,528.6	0.0	27,329.2	14,901.4	1,845.0	44,075.6
EAST	1988	8,411.9	8,781.4	42,930.8	84,055.0	17,254.5	1,423.0	162,856.6	68,165.0	6,404.1	237,425.7
	1989	5,634.2	4,142.2	10,331.7	17,408.1	12,189.6	4,677.1	54,382.9	19,381.9	6,451.3	80,216.1
	1990	131.0	300.9	644.7	409.9	120.9	5.6	1,613.0	883.5	173.7	2,670.2
	TOTAL	15,283.2	13,922.0	63,097.3	115,753.9	32,097.3	6,105.7	246,259.4	103,345.9	14,880.7	364,486.0
	5yr Avg.	3,056.6	2,784.4	12,619.5	23,150.8	6,419.5	1,221.1	49,251.9	20,669.2	2,976.1	72,897.2
INTERLAKE	1986	0.0	0.0	2.1	14.0	5.8	0.0	21.9	19.2	130.8	171.9
	1987	88.2	55.4	218.1	865.9	339.2	61.8	1,628.6	499.1	1,709.4	3,837.1
	1988	466.1	590.7	1,618.6	3,461.6	2,278.8	361.0	8,776.8	5,486.3	5,726.5	19,989.6
	1989	28,013.4	33,739.9	49,289.0	110,541.8	39,970.0	4,164.5	265,718.6	102,503.0	108,756.3	476,977.9
	1990	29.0	49.2	25.8	80.0	112.2	0.0	296.2	103.1	420.5	819.8
	TOTAL	28,596.7	34,435.2	51,153.6	114,963.3	42,706.0	4,587.3	276,442.1	108,610.7	116,743.5	501,796.3
	5yr Avg.	5,719.3	6,887.0	10,230.7	22,992.7	8,541.2	917.5	55,288.4	21,722.1	23,348.7	100,359.3
SASKATCHEWAN	1986	0.0	0.0	0.0	1.1	0.4	0.0	1.5	5.8	17.8	25.1
RIVER	1987	0.0	2.6	247.8	23.4	76.9	0.0	350.7	322.4	425.8	1,098.9
	1988	276.6	146.4	1,267.5	11,539.6	4,506.5	322.0	18,058.6	1,605.2	2,732.3	22,396.1
	1989	809.9	964.9	10,966.3	40,846.8	24,868.1	1,884.5	80,340.5	92,258.3	28,138.5	200,737.3
	1990	1.0	10.1	4.8	39.5	7.3	0.0	62.7	23.5	7.8	94.0
	TOTAL	1,087.5	1,124.0	12,486.4	52,450.4	29,459.2	2,206.5	98,814.0	94,215.2	31,322.2	224,351.4
	5yr Avg.	217.5	224.8	2,497.3	10,490.1	5,891.8	441.3	19,762.8	18,843.0	6,264.4	44,870.3

TABLE 16

WILDFIRE AREA LOSSES BY FOREST SECTION
ALL STATUS AND OWNERSHIPS

(Area in hectares)

Forest Zone
All Ownerships
All Reported Fires

FOREST SECTION	YEAR	PRODUCTIVE AREA POTENT.	REGEN.	YOUNG	INTERM.	MATURE	OVERMAT.	TOTAL PRODUCT.	FORESTED NON PRODUCT.	NON FORESTED	TOTAL LAND
HIGHROCK	1986	1.6	1.2	13.8	217.4	21.6	0.0	255.6	52.3	6.3	314.2
	1987	1,634.5	518.2	2,848.1	8,572.2	3,761.4	56.3	17,390.7	8,870.7	892.9	27,154.3
	1988	11.3	8.0	12.4	649.9	361.6	22.7	1,065.9	249.0	42.2	1,357.1
	1989	14,098.1	15,504.0	93,433.7	146,940.3	52,508.1	3,079.5	325,563.7	156,909.1	19,929.2	502,402.0
	1990	1.2	0.1	54.1	45.2	17.3	0.5	118.4	40.4	2.2	161.0
	TOTAL	15,746.7	16,031.5	96,362.1	156,425.0	56,670.0	3,159.0	344,394.3	166,121.5	20,872.8	531,388.6
	5yr Avg	3,149.3	3,206.3	19,272.4	31,285.0	11,334.0	631.8	68,878.9	33,224.3	4,174.6	106,277.7
CHURCHILL RIVER	1986	0.0	0.0	64.9	161.3	0.0	0.0	226.2	286.4	0.4	513.0
	1987	7.3	401.4	1,577.7	3,937.7	158.0	0.0	6,082.1	2,467.7	319.0	8,868.8
	1988	93.8	39.8	400.5	2,770.0	336.1	0.0	3,641.2	1,516.0	71.4	5,228.6
	1989	2,123.5	29,460.9	50,680.3	44,689.1	3,272.3	155.5	130,381.6	40,064.2	4,336.6	174,782.4
	1990	2.0	43.0	37.6	114.4	0.8	0.0	197.8	67.5	0.5	265.8
	TOTAL	2,226.6	29,944.1	52,761.0	51,672.5	3,769.2	155.5	140,528.9	44,401.8	4,727.9	189,858.6
	5yr Avg.	445.3	5,988.8	10,552.2	10,334.5	753.8	31.1	28,105.8	8,880.4	945.6	37,931.7
NELSON RIVER	1986	10.4	15.5	9.5	50.4	1.6	0.0	87.4	753.8	31.0	872.2
	1987	126.6	201.8	588.1	1,225.0	392.9	35.8	2,570.2	916.8	67.3	3,554.3
	1988	625.9	1,892.5	4,969.0	4,542.0	1,006.7	9.6	13,045.7	8,843.3	579.0	22,468.0
	1989	14,677.4	14,511.5	49,658.6	86,434.6	22,936.0	2,170.2	190,388.3	135,639.3	15,110.4	341,138.0
	1990	41.7	76.3	1,771.1	925.3	325.6	2.1	3,142.1	2,389.1	318.3	5,849.5
	TOTAL	15,482.0	16,697.8	56,996.3	93,177.3	24,662.8	2,217.7	209,233.7	148,542.3	16,106.0	373,882.0
	5yr Avg.	3,096.4	3,339.5	11,399.3	18,635.5	4,932.6	443.5	41,846.7	29,708.5	3,221.2	74,776.4

TABLE 16
WILDFIRE AREA LOSSES BY FOREST SECTION
ALL STATUS AND OWNERSHIPS

(Area in hectares)

Forest Zone
All Ownerships
All Reported Fires

FOREST SECTION	YEAR	PRODUCTIVE AREA							FORESTED NON PRODUCT.	NON FORESTED	TOTAL LAND
		POTENT.	REGEN.	YOUNG	INTERM.	MATURE	OVERMAT.	TOTAL PRODUCT.			
HAYES RIVER	1986	126.5	180.4	201.2	1,862.0	1,531.5	7.4	3,929.0	1,643.4	171.6	5,744.0
	1987	2,507.8	862.7	4,661.6	15,078.2	5,236.1	0.0	28,346.4	37,021.8	2,580.3	67,948.5
	1988	7,403.1	2,739.3	14,495.1	36,540.8	17,051.1	227.5	78,456.9	62,323.6	4,666.2	145,448.7
	1989	1,313.5	28,913.9	98,706.7	153,379.9	45,211.3	472.3	369,997.6	396,671.1	22,871.4	789,540.1
	1990	13.2	0.1	74.2	167.9	38.6	0.0	294.0	318.4	10.1	622.5
	TOTAL	53,364.1	32,696.4	118,138.8	207,048.8	69,068.6	707.2	481,023.9	497,978.3	30,301.6	1,009,303.8
	5yr Avg.	10,672.8	6,539.3	23,627.8	41,409.8	13,813.7	141.4	96,204.8	99,595.7	6,060.3	201,860.8
MANITOBA FOREST ZONE	1986	140.6	202.3	337.2	2,371.4	1,570.6	7.5	4,629.9	2,780.7	401.6	7,812.2
	1987	6,264.0	2,865.3	19,992.2	45,372.3	12,898.9	214.4	87,647.1	66,061.4	11,118.1	164,826.6
	1988	17,696.6	15,007.5	67,060.3	146,120.2	43,424.1	2,462.4	291,771.1	149,840.7	31,220.7	472,832.5
	1989	114,352.0	132,548.3	380,974.9	608,412.1	202,835.1	16,933.9	1,456,056.3	960,869.2	219,211.4	2,636,136.9
	1990	257.1	701.8	2,853.5	2,117.7	787.1	6.8	6,726.0	4,176.7	4,196.5	15,099.2
	TOTAL	138,730.6	151,345.2	471,218.1	804,393.7	261,515.8	19,627.0	1,846,830.4	1,183,728.7	266,148.3	3,296,707.4
	5yr Avg.	27,746.1	30,269.0	94,243.6	160,878.7	52,303.2	3,925.4	369,366.1	236,745.7	53,229.7	659,341.5
TUNDRA/ TRANSITION ZONE	1986	0.0	0.0	0.0	865.3	0.0	0.0	865.3	1,577.2	87.5	2,530.0
	1987	0.0	0.0	0.0	2,902.5	0.0	0.0	2,902.5	1,643.0	148.0	4,693.5
	1988	84.6	0.0	131.0	3,994.0	0.0	0.0	4,209.6	7,232.3	1,378.9	12,820.8
	1989	0.3	0.0	8,712.1	188,762.5	0.0	0.0	197,474.9	699,400.1	34,931.9	931,806.9
	1990	0.0	0.0	6.4	251.9	0.0	0.0	258.3	986.9	20.6	1,265.8
	TOTAL	84.9	0.0	8,849.5	196,776.2	0.0	0.0	205,710.6	710,839.5	36,566.9	953,117.0
	5yr Avg.	17.0	0.0	1,769.9	39,355.2	0.0	0.0	41,142.1	142,167.9	7,313.4	190,623.4

TABLE 16

WILDFIRE AREA LOSSES BY FOREST SECTION
ALL STATUS AND OWNERSHIPS

(Area in hectares)

Forest Zone
All Ownerships
All Reported Fires

FOREST SECTION	YEAR	PRODUCTIVE AREA							FORESTED NON PRODUCT.	NON FORESTED	TOTAL LAND
		POTENT.	REGEN.	YOUNG	INTERM.	MATURE	OVERMAT.	TOTAL PRODUCT.			
MANITOBA											
ALL ZONES	1986	140.9	202.3	337.2	3,236.7	1,570.6	7.5	5,495.2	4,357.2	489.1	10,342.2
	1987	6,284.0	2,885.3	19,992.2	48,274.8	12,898.9	214.4	90,549.6	67,704.4	11,266.1	169,520.1
	1988	17,781.2	15,007.5	67,191.3	150,114.2	43,424.1	2,462.4	295,980.7	157,073.0	32,599.6	485,653.3
	1989	114,352.3	132,548.3	389,687.0	797,174.6	202,835.1	16,933.9	1,653,531.2	1,660,269.3	254,143.3	3,567,943.8
	1990	257.1	701.8	2,859.9	2,369.6	787.1	8.8	6,984.3	5,163.6	4,217.1	16,365.0
	TOTAL	138,815.5	151,345.2	480,067.6	1,001,169.9	261,515.8	19,627.0	2,052,541.0	1,894,568.2	302,715.2	4,249,824.4
	5yr Avg.	27,763.1	30,269.0	96,013.5	200,234.0	52,303.2	3,925.4	410,508.2	378,913.6	60,543.0	849,964.9

TABLE 17
WILDFIRE MERCHANTABLE VOLUME LOSSES
ALL STATUS AND OWNERSHIPS

(In cubic metres)

All reported fires
All status & ownership

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	LARCH	CEDAR	TOTAL SOFTWOODS	TREMBLING ASPEN	BALSAM POPLAR	BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
ASPEN	1986	0	0	0	0	0	0	0	100	10	0	30	140	140
PARKLAND	1987	0	0	0	0	0	0	0	1,020	60	10	150	1,240	1,240
	1988	140	5,250	1,100	130	2,250	10	8,880	35,780	3,780	410	8,000	47,970	56,850
	1989	40	40	1,100	0	850	0	2,030	37,530	4,760	840	9,580	52,720	54,750
	1990	10	190	240	0	90	0	530	12,790	1,380	170	3,100	17,440	17,970
	TOTAL	190	5,480	2,440	130	3,190	10	11,440	87,220	9,990	1,430	20,870	119,510	130,950
	5yr Avg.	38	1,096	488	26	638	2	2,288	17,444	1,998	286	4,174	23,902	26,190
MOUNTAIN	1986	0	100	0	0	50	0	150	750	170	0	0	920	1,070
	1987	310	2,290	3,840	2,480	980	10	9,910	8,880	3,390	1,910	610	14,790	24,700
	1988	540	4,870	3,290	270	240	0	9,180	7,150	2,360	750	170	10,480	19,640
	1989	82,890	122,120	29,650	4,100	70,970	50	309,780	197,480	58,640	17,310	5,280	278,690	588,370
	1990	1,290	1,300	1,290	10	90	0	3,980	370	130	60	0	560	4,540
	TOTAL	85,030	130,680	38,040	6,860	72,330	60	333,000	214,610	64,620	20,030	6,060	305,320	638,320
	5yr Avg.	17,006	26,136	7,608	1,372	14,466	12	66,600	42,922	12,924	4,006	1,212	61,064	127,664
PINELAND	1986	50	220	0	0	10	0	280	0	0	0	0	0	280
	1987	47,780	11,830	1,660	1,300	6,380	550	69,500	58,030	11,900	4,270	2,110	76,310	145,810
	1988	41,780	20,400	1,940	1,660	8,410	1,150	75,340	61,370	12,170	4,160	2,210	79,910	155,250
	1989	2,080	3,750	1,390	1,510	8,880	1,620	19,210	35,950	8,360	2,500	2,470	52,310	71,520
	1990	400	4,590	380	280	3,640	300	9,570	4,050	980	330	90	5,420	14,990
	TOTAL	92,070	40,790	5,390	4,730	27,300	3,620	173,900	162,410	33,410	11,260	6,870	213,950	387,850
	5yr Avg.	18,414	8,158	1,078	946	5,460	724	34,780	32,482	6,682	2,252	1,374	42,790	77,570

TABLE 17

WILDFIRE MERCHANTABLE VOLUME LOSSES
ALL STATUS AND OWNERSHIPS

(In cubic metres)

All reported fires
All status & ownership

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	LARCH	CEDAR	TOTAL SOFTWOODS	TREMBLING ASPEN	BALSAM POPLAR	BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
LAKE	1986	580	620	140	90	0	0	1,430	1,070	30	100	0	1,200	2,630
WINNIPEG	1987	671,410	344,860	30,360	18,950	12,510	20	1,078,140	244,730	5,560	24,550	680	275,520	1,353,660
EAST	1988	4,180,880	2,206,970	274,400	186,610	89,930	20	6,938,810	1,439,600	36,550	124,910	260	1,601,340	8,540,150
	1989	1,324,310	831,360	94,540	54,300	114,030	0	2,418,530	648,160	35,160	58,080	13,580	755,980	3,174,530
	1990	15,530	12,170	280	60	790	0	28,850	5,400	60	370	0	5,830	34,680
	TOTAL	6,192,710	3,395,970	399,750	260,030	217,260	40	10,465,760	2,339,960	77,360	208,010	14,550	2,639,880	13,105,640
	5yr Avg.	1,238,542	679,194	79,950	52,006	43,452	8	2,093,152	467,992	15,472	41,602	2,910	527,976	2,621,128
INTERLAKE	1986	10	200	250	100	0	0	560	500	90	100	0	1,080	1,640
	1987	4,160	9,810	5,170	1,110	1,980	0	22,250	48,030	4,330	2,040	410	54,810	77,060
	1988	17,650	129,130	31,490	21,670	5,470	110	205,520	180,340	22,440	18,330	700	221,810	427,330
	1989	1,416,630	2,686,670	916,430	667,760	266,060	2,410	5,955,960	4,958,570	573,510	468,480	30,270	6,030,830	11,986,790
	1990	190	1,640	530	480	140	0	2,980	11,380	1,000	690	110	13,080	16,060
	TOTAL	1,438,660	2,827,450	953,870	691,120	273,650	2,520	6,187,270	5,199,210	601,370	489,640	31,490	6,321,810	12,508,880
	5yr Avg.	287,732	565,490	190,774	138,224	54,730	504	1,237,454	1,039,842	120,274	97,908	6,298	1,264,322	2,501,776
SASKATCHEWAN	1986	30	10	30	0	0	0	70	0	0	0	0	0	70
RIVER	1987	420	3,660	3,110	200	0	0	7,390	4,670	660	800	0	6,130	13,520
	1988	593,420	268,430	66,980	4,990	5,930	0	939,650	77,150	10,740	16,810	240	104,740	1,044,390
	1989	2,120,080	2,188,500	448,110	25,190	79,490	0	4,861,380	561,070	83,940	112,790	2,250	760,050	5,621,410
	1990	1,360	710	420	50	10	0	2,570	380	10	50	0	440	3,010
	TOTAL	2,715,330	2,461,310	518,550	30,420	86,430	0	5,811,040	643,270	95,350	130,250	2,490	871,360	6,682,400
	5yr Avg.	543,066	492,262	103,710	6,084	17,086	0	1,162,208	128,654	19,070	26,050	498	174,272	1,336,480

TABLE 17
WILDFIRE MERCHANTABLE VOLUME LOSSES
ALL STATUS AND OWNERSHIPS

(In cubic metres)

All reported fires
All status & ownership

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	LARCH	CEDAR	TOTAL SOFTWOODS	TREMBLING ASPEN	BALSAM POPLAR	BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
HIGHROCK	1986	1,180	7,040	4,940	190	0	0	13,250	2,560	360	610	0	3,550	16,800
	1987	44,700	50,580	89,490	5,220	380	0	190,370	1,046,990	86,360	44,480	0	1,177,880	1,368,230
	1988	15,430	59,580	12,080	570	190	0	87,850	10,310	1,600	2,210	0	14,120	101,970
	1989	5,110,850	9,684,280	948,780	48,080	42,910	0	15,834,880	2,085,080	150,480	460,810	0	2,705,380	18,540,260
	1990	1,230	3,550	130	0	0	0	4,910	350	0	40	0	390	5,300
	TOTAL	5,173,390	9,805,030	1,056,320	54,040	43,480	0	16,131,260	3,145,320	247,830	508,150	0	3,901,300	20,032,560
	5yr Avg.	1,034,678	1,961,006	211,064	10,808	8,696	0	3,226,252	629,064	49,566	101,630	0	780,260	4,006,512
CHURCHILL RIVER	1986	420	7,930	70	0	10	0	8,430	60	10	220	0	290	8,710
	1987	55,760	36,350	70	0	90	0	92,290	2,470	60	4,530	0	7,060	99,350
	1988	6,790	177,200	1,350	0	140	0	185,510	480	320	4,310	0	5,110	190,620
	1989	501,080	632,950	2,030	0	1,580	0	1,137,620	19,570	1,050	51,370	0	71,990	1,209,610
	1990	690	2,950	20	0	0	0	3,660	290	10	780	0	1,080	4,740
	TOTAL	564,740	857,380	3,570	0	1,820	0	1,427,510	22,860	1,450	61,210	0	85,520	1,513,030
	5yr Avg.	112,948	171,476	714	0	364	0	285,502	4,572	290	12,242	0	17,104	302,606
NELSON RIVER	1986	1,370	1,730	190	0	20	0	3,310	260	10	0	0	270	3,580
	1987	30,130	70,260	13,670	1,830	450	0	116,340	14,280	1,920	2,840	0	19,040	135,380
	1988	87,780	271,570	18,780	2,310	1,050	0	381,490	33,250	4,870	7,760	0	45,880	427,370
	1989	2,054,760	5,090,600	529,080	75,310	20,670	0	7,770,430	1,297,900	155,970	211,170	0	1,665,040	9,435,470
	1990	15,760	68,960	7,870	1,340	210	0	92,160	11,820	1,500	2,530	0	15,850	108,010
	TOTAL	2,189,820	5,501,120	569,600	80,790	22,400	0	8,363,730	1,357,510	164,270	224,300	0	1,746,080	10,109,810
	5yr Avg.	437,964	1,100,224	113,920	16,158	4,480	0	1,672,746	271,502	32,854	44,860	0	349,216	2,021,962

TABLE 17

WILDFIRE MERCHANTABLE VOLUME LOSSES
ALL STATUS AND OWNERSHIPS

(In cubic metres)

All reported fires
All status & ownership

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	LARCH	CEDAR	TOTAL SOFTWOODS	TREMBLING ASPEN	BALSAM POPLAR	BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
HAYES	1986	44,500	261,190	16,990	21,130	280	0	344,070	33,990	9,000	18,870	0	61,760	405,830
RIVER	1987	731,080	616,130	29,800	16,680	630	0	1,594,500	151,890	7,730	43,440	0	203,060	1,797,560
	1988	2,033,750	2,307,740	57,000	47,700	3,080	0	4,449,270	540,340	56,340	150,400	0	747,080	5,196,350
	1989	7,124,940	7,369,820	341,810	139,500	22,810	0	14,998,880	1,805,600	186,440	443,360	0	2,435,400	17,434,280
	1990	4,320	8,580	420	310	0	0	13,630	1,110	50	390	0	1,550	15,180
	TOTAL	9,938,570	10,763,460	446,020	225,320	26,980	0	21,400,350	2,532,930	259,560	656,460	0	3,448,850	24,848,200
	5yr Avg.	1,987,714	2,152,692	89,204	45,064	5,396	0	4,280,070	506,586	51,912	131,292	0	689,770	4,969,840
MANITOBA	1986	48,140	279,040	22,510	21,510	350	0	371,550	39,590	9,960	19,900	30	69,200	440,750
FOREST	1987	1,586,770	1,345,770	177,220	47,770	23,680	580	3,180,990	1,580,990	122,000	129,870	3,960	1,836,820	5,016,510
ZONE	1988	6,978,160	5,451,140	466,310	285,910	116,990	1,290	13,281,500	2,385,770	151,200	329,850	11,600	2,878,420	16,159,920
	1989	19,737,620	28,610,080	3,312,930	1,015,720	628,250	4,080	53,308,680	11,650,910	1,267,230	1,826,710	63,450	14,808,300	68,116,980
	1990	40,820	102,640	11,580	2,530	4,970	300	162,840	47,940	5,100	5,310	3,290	61,640	224,480
	TOTAL	28,390,510	35,788,670	3,992,550	1,353,440	773,840	6,250	70,305,260	15,705,200	1,555,210	2,310,640	82,330	19,653,380	89,958,640
	5yr Avg.	5,678,102	7,157,734	798,510	270,688	154,768	1,250	14,061,052	3,141,040	311,042	462,128	16,466	3,930,676	17,991,728
TUNDRA/	1986	1,630	27,370	120	0	40	0	29,160	260	0	1,110	0	1,370	30,470
TRANSITION	1987	20,510	63,730	470	0	50	0	84,760	20,360	80	5,680	0	26,120	110,860
ZONE	1988	4,280	134,460	590	0	170	0	139,500	970	0	5,450	0	6,420	145,920
	1989	250,870	6,369,860	28,550	0	8,630	0	6,658,030	47,540	0	258,910	0	306,450	6,964,480
	1990	390	8,110	30	0	10	0	8,540	40	0	280	0	320	8,860
	TOTAL	277,680	6,603,550	29,860	0	8,900	0	6,919,990	69,110	80	271,430	0	340,620	7,260,610
	5yr Avg.	55,536	1,320,710	5,972	0	1,780	0	1,383,998	13,822	16	54,286	0	68,124	1,452,122

TABLE 17

WILDFIRE MERCHANTABLE VOLUME LOSSES
ALL STATUS AND OWNERSHIPS

(In cubic metres)

All reported fires
All status & ownership

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	LARCH	CEDAR	TOTAL SOFTWOODS	TREMBLING ASPEN	BALSAM POPLAR	BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
MANITOBA	1986	49,770	308,410	22,630	21,510	390	0	400,710	39,750	9,680	21,010	30	70,510	471,220
ALL ZONES	1987	1,606,280	1,409,500	177,690	47,770	23,630	580	3,265,450	1,601,350	122,080	134,550	3,960	1,861,940	5,127,390
	1988	6,982,440	5,585,600	466,900	265,910	116,960	1,290	13,421,000	2,386,740	151,200	335,300	11,600	2,884,840	16,305,840
	1989	19,988,490	34,979,960	3,341,580	1,015,720	636,880	4,080	59,966,710	11,698,450	1,267,230	2,085,620	63,450	15,114,750	75,081,460
	1990	41,210	110,750	11,610	2,530	4,980	300	171,380	47,980	5,100	5,590	3,290	61,960	233,340
	TOTAL	28,668,190	42,392,220	4,022,410	1,353,440	782,740	6,250	77,225,250	15,774,310	1,555,290	2,582,070	82,330	19,994,000	97,219,250
	5yr Avg.	5,733,638	8,478,444	804,482	270,688	156,548	1,250	15,445,050	3,154,862	311,058	516,414	16,466	3,998,800	19,443,850

TABLE 18

ANNUAL ALLOWABLE HARVEST SUMMARY
PROVINCIAL CROWN LAND - OPEN ZONE
BY FOREST SECTION AND SPECIES WORKING GROUP

(Volume in cubic metres per year)

FOREST SECTION	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EASTERN CEDAR	TOTAL SOFTWOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
ASPEN PARKLAND	0	40	2,320	0	0	0	2,360	40,100	4,330	1,140	14,030	59,600	61,960
MOUNTAIN	114,310	192,560	75,220	16,410	3,680	0	402,180	415,290	101,970	56,870	4,160	578,290	980,470
PINELAND	83,790	85,020	14,000	9,080	27,910	2,430	222,230	101,260	24,080	10,420	3,840	139,600	361,830
LAKE WINNIPEG EAST	392,590	284,670	60,770	16,990	19,110	280	774,410	189,130	10,550	11,990	3,550	215,220	989,630
INTERLAKE	170,500	162,630	75,430	39,900	1,580	0	450,040	274,860	32,060	34,690	1,440	343,050	793,090
SASKATCHEWAN RIVER	230,080	170,810	78,810	2,750	1,960	0	484,410	96,260	10,190	12,400	40	118,890	603,300
HIGHROCK	323,610	546,060	93,520	4,230	510	0	967,930	208,980	15,600	25,500	0	250,080	1,218,010
CHURCHILL RIVER	9,830	70,620	1,340	0	0	0	81,790	3,020	1,010	3,010	0	7,040	88,830
NELSON RIVER	261,960	551,280	125,720	12,920	560	0	952,440	200,940	23,200	23,470	0	247,610	1,200,050
HAYES RIVER	869,900	658,820	56,020	23,640	30	0	1,608,410	269,170	32,800	49,840	0	351,810	1,960,220
MANITOBA OPEN ZONE	2,456,570	2,722,510	583,150	125,920	55,340	2,710	5,946,200	1,799,010	255,790	229,330	27,060	2,311,190	8,257,390

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
01	III	CLOSED	1983	PROV	0	0	130	0	0	0	130	950	140	40	280	1,410	1,540	0.02%
	III	OPEN	1983	PROV	0	0	440	0	0	0	440	8,570	1,080	240	3,500	13,390	13,830	0.16%
02	III	OPEN	1982	PROV	0	10	350	0	0	0	360	6,410	980	260	3,030	10,680	11,040	0.13%
04	III	OPEN	1982	PROV	0	10	870	0	0	0	880	3,060	560	180	3,520	7,320	8,200	0.09%
	III	RESTRICT	1982	PROV	0	70	1,950	0	0	0	2,020	3,590	920	420	2,170	7,100	9,120	0.10%
05	III	OPEN	1984	PROV	0	20	430	0	0	0	450	6,170	790	220	1,680	8,860	9,310	0.11%
06	III	CLOSED	1988	PROV	0	0	0	0	0	0	0	11,120	120	30	780	12,050	12,050	0.14%
	III	OPEN	1988	PROV	0	0	0	0	0	0	0	10,340	320	70	1,030	11,760	11,760	0.14%
	III	RESTRICT	1988	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
07	III	CLOSED	1988	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	III	OPEN	1988	PROV	0	0	230	0	0	0	230	5,550	600	170	1,270	7,590	7,820	0.09%
	III	RESTRICT	1988	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
ASPEN PARKLAND		CLOSED		PROV	0	0	130	0	0	0	130	12,070	260	70	1,060	13,460	13,590	0.16%
		OPEN		PROV	0	40	2,320	0	0	0	2,360	40,100	4,330	1,140	14,030	59,600	61,960	0.71%
		RESTRICT		PROV	0	70	1,950	0	0	0	2,020	3,590	920	420	2,170	7,100	9,120	0.10%
		TOTAL		PROV	0	110	4,400	0	0	0	4,510	55,760	5,510	1,630	17,260	80,160	84,670	0.97%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
10	III	OPEN 0-1	1980	PROV	440	440	0	70	50	0	1,000	17830	8080	1700	1,970	29,580	30,580	0.35%
	III	OPEN 2,4-1	1980	PROV	50	100	0	40	0	0	190	2480	970	660	30	4,130	4,320	0.05%
	III	OPEN 8-1	1980	PROV	210	250	0	30	30	0	520	7880	3280	790	550	12,480	13,000	0.15%
	III	OPEN TOTAL	1980	PROV	700	790	0	140	80	0	1,710	28,190	12,310	3,140	2,550	46,190	47,900	0.55%
11	II	OPEN 0-1	1981	FML 2-2	1160	1100	150	90	170	0	2,670	2570	620	450	0	3,640	6,310	0.07%
	II	OPEN 2-1	1981	FML 2-2	4020	9540	2880	660	710	0	17,810	10430	3110	2000	30	15,570	33,380	0.38%
	II	OPEN 8-1	1981	FML 2-2	30	330	0	60	0	0	420	2340	420	440	10	3,210	3,630	0.04%
	II	OPEN TOTAL	1981	FML 2-2	5,210	10,970	3,030	810	880	0	20,900	15,340	4,150	2,890	40	22,420	43,320	0.50%
12	II	OPEN 0-1	1981	FML 2-2	0	10	130	0	0	0	140	110	30	20	0	160	300	0.00%
	II	OPEN 2,4-1	1981	FML 2-2	9510	18450	10520	2660	1790	0	42,930	18950	5830	4180	40	29,000	71,930	0.83%
	II	OPEN 8-1	1981	FML 2-2	10	340	550	10	20	0	930	430	100	80	0	610	1,540	0.02%
12	II	TOTAL OPEN	1981	FML 2-2	9,520	18,800	11,200	2,670	1,810	0	44,000	19,480	5,980	4,280	40	29,770	73,770	0.85%
	II	OPEN 8-1	1981	FML 2-1	3,220	6,180	3,100	390	380	0	13,270	2,090	900	490	0	3,480	16,750	0.19%
	II	UB TOTAL OPEN		FML 2	12,740	24,980	14,300	3,060	2,190	0	57,270	21,580	6,880	4,770	40	33,250	90,520	1.04%
13	III	CLOSED	1983	FML 2-2	2,010	4,190	1,860	100	0	0	8,160	10,170	2,090	930	0	13,190	21,350	0.25%
	III	OPEN 1,7-1	1983	FML 2-2	55,650	91,080	43,800	7,600	340	0	198,250	265,650	56,160	32,020	750	354,580	552,830	6.35%
	III	RESTRICT	1983	FML 2-2	5,150	8,860	3,160	410	10	0	17,590	24,450	4,870	2,360	10	31,690	49,280	0.57%
14	III	OPEN 1-1	1981	FML 2-2	40,010	64,760	14,290	4,800	190	0	124,050	84,530	22,490	14,050	780	121,850	245,900	2.82%
MOUNTAIN		CLOSED		FML 2-2	2,010	4,190	1,860	100	0	0	8,160	10,170	2,090	930	0	13,190	21,350	0.25%
		OPEN		PROV	700	790	0	140	80	0	1,710	28,190	12,310	3,140	2,550	46,190	47,900	0.55%
		OPEN		FML 2-2	110,390	185,590	72,120	15,880	3,220	0	387,200	385,010	88,760	53,240	1,810	528,820	915,820	10.52%
		OPEN		FML 2-1	3,220	6,180	3,100	390	380	0	13,270	2,090	900	490	0	3,480	16,750	0.19%
		SUB TOTAL OPEN		FML 2	113,610	191,770	75,220	16,270	3,600	0	400,470	387,100	89,660	53,730	1,810	532,100	932,570	10.71%
		SUB TOTAL OPEN		ALL	114,310	192,560	75,220	16,410	3,680	0	402,180	415,290	101,970	56,870	4,160	576,290	980,470	11.26%
		RESTRICT		FML 2-2	5,150	8,860	3,160	410	10	0	17,590	24,450	4,870	2,360	10	31,690	49,280	0.57%
		TOTAL			121,470	205,610	80,240	16,920	3,690	0	427,930	449,910	108,930	60,160	4,170	623,170	1,051,100	12.07%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
20	III	CLOSED	1988	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		OPEN 0-1	1988		760	3,020	570	360	1,860	90	6,660	6,770	1,670	510	190	9,140	15,800	0.18%
		OPEN 1-1	1988		69,110	63,510	9,540	6,100	21,000	2,030	171,290	72,340	17,060	7,530	2,420	99,350	270,640	3.13%
		OPEN 2-1	1988		1,120	4,700	830	580	2,500	200	9,930	6,510	1,570	610	180	8,870	18,800	0.22%
	III	OPEN TOTAL	1988	PROV	70,990	71,230	10,940	7,040	25,360	2,320	187,880	85,620	20,300	8,650	2,790	117,360	305,240	3.53%
	III	RESTRICT	1988	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	III	COM.PAST	1988	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
23	III	CLOSED	1989	PROV							0				0	0	0	0.00%
	III	OPEN	1989	PROV	12,800	13,790	3,060	2,040	2,550	110	34,350	15,640	3,780	1,770	1,050	22,240	56,590	0.65%
	III	RESTRICT	1989	PROV							0				0	0	0	0.00%
	III	COM.PAST	1989	PROV							0				0	0	0	0.00%
PINELAND		CLOSED		PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		OPEN		PROV	83,790	85,020	14,000	9,080	27,910	2,430	222,230	101,260	24,080	10,420	3,840	139,600	361,830	4.18%
		RESTRICT		PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		COM.PAST		PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		TOTAL			83,790	85,020	14,000	9,080	27,910	2,430	222,230	101,260	24,080	10,420	3,840	139,600	361,830	4.18%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
30	III	CLOSED	1989	PROV	10,560	5,840	2,750	890	150	50	20,240	10,570	1,200	840	150	12,760	33,000	0.36%
	III	OPEN	1989	PROV	52,350	27,770	8,870	2,470	2,170	280	93,910	28,800	2,380	2,560	1,230	34,970	128,880	1.46%
	III	RESTRICT	1989	PROV	740	110	150	20	0	0	1,020	710	50	60	0	820	1,840	0.02%
31	III	CLOSED	1989	FML 1	7,300	6,820	880	340	170	0	15,310	2,350	120	270	20	2,760	18,070	0.21%
	III	OPEN	1989	FML 1	121,370	67,130	19,420	5,010	12,480	0	225,410	57,980	4,570	5,310	2,320	70,480	295,890	3.40%
	III	RESTRICT	1989	FML 1	16,200	8,810	2,890	780	120	0	28,800	6,140	440	570	90	7,240	36,040	0.41%
35	III	CLOSED	1989	FML 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	III	OPEN	1989	FML 1	10,100	9,990	1,380	450	990	0	22,510	4,490	140	280	0	4,900	27,410	0.31%
	III	CLOSED	1989	IWSA 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	III	OPEN	1989	IWSA 1	27,230	20,320	3,020	900	2,220	0	53,690	8,310	230	600	0	9,140	62,830	0.72%
	III	CLOSED	1989	PROV	28,440	17,900	3,520	1,040	1,190	0	52,090	10,110	240	670	0	11,020	63,110	0.72%
	SUB TOTAL CLOSED				28,440	17,900	3,520	1,040	1,190	0	52,090	10,110	240	670	0	11,020	63,110	0.72%
	SUB TOTAL OPEN				37,330	30,010	4,400	1,350	3,110	0	76,200	12,790	370	880	0	14,040	90,240	1.04%
36	I	CLOSED	1986	PROV	27,540	17,530	4,280	1,700		0	51,050				0	0	51,050	0.58%
	I	OPEN	1986	PROV	23,200	22,540	5,560	1,880		0	53,180				0	0	53,180	0.61%
37	II	OPEN	1986	PROV	75,740	39,130	4,440	1,360	380	0	121,050	28,030	1,100	1,080	0	30,210	151,260	1.74%
	II	OPEN	1986	IWSA 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
38	II	CLOSED	1976	IWSA 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	II	OPEN	1976	IWSA 1	43,400	46,910	12,560	3,360	420	0	106,350	28,540	1,010	1,140	0	30,690	137,040	1.57%
39	II	OPEN	1967	PROV	25,290	31,140	3,310	850	310	0	60,900	24,470	490	640	0	25,600	86,500	0.99%
	II	OPEN	1967	IWSA 1	13,910	20,340	2,210	710	240	0	37,410	8,520	330	380	0	9,230	46,640	0.54%
	SUB TOTAL OPEN				39,200	51,480	5,520	1,560	550	0	98,310	32,990	820	1,020	0	34,830	133,140	1.53%
LAKE WINNIPEG EAST	CLOSED			PROV	66,540	41,270	10,550	3,630	1,340	50	123,380	20,680	1,440	1,510	150	23,780	147,160	1.69%
	CLOSED			FML 1	7,300	6,820	880	340	170	0	15,310	2,350	120	270	20	2,760	18,070	0.21%
	CLOSED			IWSA 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	SUB TOTAL CLOSED				73,840	47,890	11,430	3,970	1,510	50	138,690	23,030	1,560	1,780	170	26,540	165,230	1.90%
	OPEN			PROV	176,580	120,580	22,180	6,560	2,860	280	329,040	61,300	3,970	4,280	1,230	90,780	419,820	4.82%
	OPEN			FML 1	131,470	76,820	20,800	5,460	13,370	0	247,920	62,480	5,010	5,590	2,320	75,380	323,300	3.71%
	OPEN			IWSA 1	84,540	87,270	17,790	4,970	2,880	0	197,450	45,370	1,570	2,120	0	49,060	246,510	2.83%
	SUB TOTAL OPEN				392,590	284,670	60,770	16,990	19,110	280	774,410	169,130	10,550	11,990	3,550	215,220	989,630	11.37%
	RESTRICT			PROV	740	110	150	20	0	0	1,020	710	50	60	0	820	1,840	0.02%
	RESTRICT			FML 1	16,200	8,810	2,890	780	120	0	29,800	6,140	440	570	90	7,240	36,040	0.41%
	SUB TOTAL RESTRICTED				16,940	8,920	3,040	800	120	0	29,820	6,850	490	630	90	8,060	37,880	0.44%
	TOTAL				483,370	341,480	75,240	21,760	20,740	330	942,920	219,010	12,600	14,400	3,810	249,820	1,192,740	13.70%

TABLE 19
ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
40	II	CLOSED	1978	PROV	30	540	740	720	0	0	2,030	2,180	220	410	0	2,810	4,840	0.08%
	II	OPEN 2,4,7	1978	IWSA 2	5,870	13,500	6,410	5,480	60	0	31,320	22,200	1,930	3,810	40	27,980	59,300	0.66%
	II	RESTRICT	1978	PROV	50	560	940	1,110	0	0	2,660	2,560	250	540	0	3,350	6,010	0.07%
41	II	OPEN 2,4-1	1978	IWSA 2	20460	53860	25790	17480	470	0	118,060	77500	7990	13150	260	98,900	216,960	2.49%
	II	OPEN 9-1	1978	IWSA 2	600	280	350	220	0	0	1,450	4210	320	320	20	4,870	6,320	0.07%
	II	OPEN TOTAL	1978	IWSA 2	21,060	54,140	26,140	17,700	470	0	119,510	81,710	8,310	13,470	280	103,770	223,280	2.56%
A2	III	OPEN 0-1	1981	PROV	840	0	1000	0	0	0	1,840	11880	1410	430	100	13,820	15,660	0.18%
	III	OPEN 2,4-1	1981	PROV	900	30	400	0	0	0	1,330	5470	590	240	0	6,300	7,630	0.09%
	III	OPEN 9-1	1981	PROV	250	0	180	0	0	0	430	2850	360	90	0	3,290	3,720	0.04%
	III	OPEN TOTAL	1981	PROV	1,990	30	1,580	0	0	0	3,600	20,200	2,360	780	100	23,410	27,010	0.31%
43	III	OPEN 2,4-1	1980	FML 2-2	16740	7720	5960	1420	220	0	31,060	16470	2810	2200	40	21,520	52,570	0.60%
	III	OPEN 9-1	1980	FML 2-2	4010	2320	5740	450	130	0	12,650	36500	4800	2060	840	43,990	56,640	0.65%
	III	OPEN TOTAL	1980	FML 2-2	19,750	10,040	11,690	1,870	350	0	43,700	52,970	7,410	4,250	880	65,510	109,210	1.25%
45	II	OPEN 2-1	1978	FML 2-2	36,210	16,000	9,910	4,130	110	0	66,360	25,810	3,480	3,810	40	33,150	99,510	1.13%
	II	OPEN 6-1	1978	IWSA 2	15,590	28,400	8,730	4,640	240	0	55,600	36,210	3,900	3,750	100	43,960	99,560	1.14%
		SUB TOTAL OPEN			50,800	44,400	18,640	8,770	350	0	120,960	62,020	7,380	7,560	140	77,110	198,070	2.28%
46	II	OPEN 2-1	1979	FML 2-2	43,050	20,470	7,100	2,980	160	0	73,740	29,750	3,170	2,650	0	35,570	109,310	1.26%
47	II	OPEN 6-1	1980	FML 2-1	17,250	15,280	3,880	2,480	150	0	39,030	4,950	1,220	1,810	0	7,980	46,710	0.54%
		SUB TOTAL OPEN		FML 2	10,730	4,790	1,990	630	40	0	18,180	1,360	280	380	0	2,020	20,200	0.23%
					27,980	20,050	5,870	3,120	190	0	57,210	6,010	1,500	2,190	0	9,700	66,910	0.77%
INTERLAKE		CLOSED		PROV	30	540	740	720	0	0	2,030	2,180	220	410	0	2,810	4,840	0.08%
		OPEN		PROV	1,990	30	1,580	0	0	0	3,600	20,200	2,360	780	100	23,410	27,010	0.31%
		OPEN		IWSA 2	42,520	96,040	39,280	27,820	770	0	206,430	140,120	14,140	21,030	420	175,710	382,140	4.39%
		OPEN		FML 2-2	115,260	61,770	32,580	11,450	770	0	221,830	113,180	15,290	12,520	920	141,910	363,740	4.18%
		OPEN		FML 2-1	10,730	4,790	1,990	630	40	0	18,180	1,360	280	380	0	2,020	20,200	0.23%
		SUB TOTAL OPEN		FML 2	125,990	66,560	34,570	12,080	810	0	240,010	114,540	15,570	12,900	920	143,930	383,940	4.41%
		SUB TOTAL OPEN		ALL	170,500	162,630	75,430	39,900	1,580	0	450,040	274,860	32,060	34,690	1,440	343,050	793,090	9.11%
		RESTRICT		PROV	50	560	940	1,110	0	0	2,660	2,560	250	540	0	3,350	6,010	0.07%
		TOTAL			170,580	163,730	77,110	41,730	1,580	0	454,730	279,600	32,530	35,640	1,440	349,210	803,940	9.23%

TABLE 19
ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
51	II	OPEN 2-1	1982	FML 2-2	2,260	3,700	1,530	60	70	0	7,620	1,200	170	220	0	1,590	9,210	0.11%
	II	OPEN 6-1	1982	FML 2-1	60,560	28,000	8,950	310	610	0	98,430	10,150	950	1,980	0	13,080	111,490	1.28%
		SUB TOTAL OPEN		FML 2	62,820	31,700	10,480	370	680	0	106,050	11,350	1,120	2,180	0	14,650	120,700	1.39%
52	II	OPEN 0-1	1982	FML 2-1	160	240	580	0	0	0	980	3650	290	160	10	4,110	5,090	0.06%
	II	OPEN 4,6-1	1982	FML 2-1	6110	9550	3740	110	130	0	19,640	4650	650	470	0	5,770	25,410	0.29%
	II	OPEN TOTAL	1982	FML 2-1	6,270	9,790	4,320	110	130	0	20,620	8,300	940	630	10	9,880	30,500	0.35%
53	II	OPEN 4,6-1	1982	FML 2-1	91,490	46,680	25,880	860	410	0	165,320	36,580	3,230	4,460	20	44,290	209,610	2.41%
54	II	OPEN 6-1	1982	FML 2-1	21,760	23,650	5,610	170	250	0	61,440	5,070	780	860	0	6,710	68,150	0.87%
55	II	OPEN 4,6-1	1982	FML 2-1	14,560	12,510	4,530	160	90	0	31,850	5,530	680	650	0	6,940	38,690	0.44%
56	II	OPEN 4,6-1	1982	FML 2-1	25,120	34,080	21,300	740	290	0	81,530	26,330	2,940	2,910	10	32,190	113,720	1.31%
57	II	CLOSED 7-0	1982	PROV	1,290	1,120	260	0	0	0	2,670	170	30	40	0	240	2,910	0.03%
	II	OPEN 1,7-1	1982	PROV	8,080	12,400	6,690	340	110	0	27,600	3,100	520	710	0	4,330	31,930	0.37%
	II	RESTR 7-2	1982	PROV	1,590	1,960	1,210	30	0	0	4,780	440	70	240	0	760	5,510	0.06%
SASKATCHEWAN RIVER		CLOSED		PROV	1,290	1,120	260	0	0	0	2,670	170	30	40	0	240	2,910	0.03%
		OPEN		PROV	8,080	12,400	6,690	340	110	0	27,600	3,100	520	710	0	4,330	31,930	0.37%
		OPEN		FML 2-1	219,780	154,710	70,590	2,350	1,780	0	448,190	91,980	9,500	11,470	40	112,970	562,160	6.48%
		OPEN		FML 2-2	2,260	3,700	1,530	60	70	0	7,620	1,200	170	220	0	1,590	9,210	0.11%
		SUB TOTAL OPEN		FML 2	222,020	158,410	72,120	2,410	1,850	0	456,810	93,180	9,670	11,690	40	114,560	571,370	6.58%
		SUB TOTAL OPEN		ALL	230,080	170,810	78,810	2,750	1,960	0	484,410	96,280	10,190	12,400	40	118,880	603,300	6.93%
		RESTRICT		PROV	1,590	1,960	1,210	30	0	0	4,780	440	70	240	0	760	5,510	0.06%
		TOTAL			232,930	173,990	80,280	2,780	1,960	0	491,840	96,870	10,290	12,680	40	119,680	611,720	7.03%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
60	II	CLOSED	1966	FML 2-1	4,530	9,320	4,790	230	0	0	18,870	7,580	570	820	0	8,970	27,840	0.32%
	II	OPEN	1966	FML 2-1	23,160	24,100	9,290	530	0	0	57,080	12,350	850	1,780	0	14,980	72,060	0.83%
	II	RESTRICT	1966	FML 2-1	4,780	11,890	7,310	540	0	0	24,520	6,900	570	880	0	8,350	32,870	0.38%
61	II	OPEN	1966	FML 2-1	9,260	28,720	7,920	300	60	0	46,260	18,630	1,590	1,310	0	21,530	67,790	0.78%
62	II	OPEN	1966	FML 2-1	50,970	67,590	21,430	1,020	90	0	141,100	33,750	2,440	4,760	0	40,950	182,050	2.09%
63	II	OPEN	1968	FML 2-1	80,330	128,530	17,120	860	90	0	226,930	41,360	3,160	5,360	0	49,880	276,790	3.19%
64	II	OPEN	1969	FML 2-1	72,890	142,630	16,730	770	120	0	233,140	38,220	2,920	4,930	0	46,070	279,210	3.21%
65	II	OPEN	1970	FML 2-1	55,420	70,900	10,160	340	60	0	136,880	31,280	2,010	4,080	0	37,350	174,230	2.00%
66	II	OPEN	1969	FML 2-1	31,580	83,590	10,870	410	90	0	126,540	33,400	2,630	3,310	0	39,340	165,880	1.91%
HIGHROCK		CLOSED		FML 2-1	4,530	9,320	4,790	230	0	0	18,870	7,580	570	820	0	8,970	27,840	0.32%
		OPEN		PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		OPEN		FML 2-1	323,610	546,060	93,520	4,230	510	0	967,930	208,980	15,600	25,500	0	250,080	1,218,010	13.99%
		SUB TOTAL OPEN			323,610	546,060	93,520	4,230	510	0	967,930	208,980	15,600	25,500	0	250,080	1,218,010	13.99%
		RESTRICT		FML 2-1	4,780	11,890	7,310	540	0	0	24,520	6,900	570	880	0	8,350	32,870	0.38%
		TOTAL			332,920	567,270	105,620	5,000	510	0	1,011,320	223,460	16,740	27,200	0	267,400	1,278,720	14.69%
71	II	OPEN	1975	PROV	4,020	10,700	350	0	0	0	15,070	950	270	950	0	1,970	17,040	0.20%
72	II	OPEN	1969	PROV	5,670	49,330	820	0	0	0	55,820	2,170	740	2,010	0	4,920	60,740	0.70%
73	II	OPEN	1975	PROV	140	10,590	170	0	0	0	10,900	0	0	150	0	150	11,050	0.13%
74	II	OPEN	1975	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
75	II	OPEN	1969	PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
CHURCHILL RIVER		OPEN			9,830	70,620	1,340	1	0	0	81,790	3,020	1,010	3,010	0	7,040	88,830	1.02%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
82	II	OPEN	1966	PROV	29,420	61,970	24,550	3,590	30	0	119,560	28,150	3,360	4,500	0	34,010	153,570	1.76%
83	II	CLOSED	1965	FML 2-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	II	OPEN	1965	FML 2-1	72,990	151,780	35,820	3,230	170	0	263,990	61,220	6,660	6,030	0	73,910	337,900	3.86%
	II	OPEN	1965	INCO	700	4,180	800	120	0	0	5,890	820	80	190	0	1,090	6,910	0.08%
		SUB TOTAL OPEN			73,680	155,960	36,620	3,350	170	0	269,780	62,040	6,740	6,160	0	74,930	344,710	3.96%
84	II	CLOSED	1965	FML 2-1							0				0	0	0	0.00%
	II	OPEN	1965	FML 2-1	55,380	118,670	28,850	3,510	120	0	204,530	37,380	4,260	4,800	0	46,440	250,970	2.88%
	II	OPEN	1965	INCO	1,380	3,680	820	60	0	0	5,940	2,040	200	170	0	2,410	8,350	0.10%
		SUB TOTAL OPEN			56,760	120,350	29,670	3,570	120	0	210,470	39,420	4,460	4,970	0	48,850	259,320	2.98%
85	II	CLOSED	1965	FML 2-1	600	2,880	1,130	200	0	0	4,790	1,190	90	110	0	1,390	6,180	0.07%
	II	OPEN	1965	FML 2-1	40,090	97,600	15,800	1,440	90	0	154,920	26,060	3,200	3,080	0	32,340	187,260	2.16%
	II	OPEN	1965	INCO	3,280	2,970	680	60	0	0	7,190	3,170	260	170	0	3,600	10,790	0.12%
		SUB TOTAL OPEN			43,370	100,470	16,480	1,500	90	0	162,110	29,220	3,460	3,260	0	35,940	198,050	2.27%
	II	RESTRICT	1965	FML 2-1	420	5,980	1,520	260	0	0	8,180	500	60	140	0	700	8,880	0.10%
86	II	OPEN	1965	PROV	16,990	50,600	5,390	420	90	0	73,490	4,500	1,100	910	0	6,510	80,000	0.92%
87	II	OPEN	1970	FML 2-1	23,740	34,880	5,150	230	30	0	64,030	13,420	1,870	1,840	0	16,730	80,760	0.93%
	II	OPEN	1970	INCO	5,860	7,390	1,360	0	0	0	14,610	5,130	510	420	0	6,060	20,670	0.24%
		SUB TOTAL OPEN			29,600	42,270	6,510	230	30	0	78,640	18,550	2,180	2,260	0	22,790	101,430	1.17%
88	II	OPEN	1970	PROV	2,600	2,630	1,250	60	0	0	6,540	3,190	320	290	0	3,800	10,340	0.12%
89	II	OPEN	1970	FML 2-1	9,510	16,910	4,960	200	30	0	30,610	17,870	1,550	1,330	0	20,750	51,360	0.59%
	II	OPEN	1970	INCO	30	1,120	80	0	0	0	1,240	0	30	0	0	30	1,270	0.01%
		SUB TOTAL OPEN			9,540	17,730	5,040	200	30	0	31,850	17,870	1,580	1,330	0	20,780	52,630	0.60%
NELSON RIVER		CLOSED		FML 2-1	600	2,880	1,130	200	0	0	4,790	1,190	90	110	0	1,390	6,180	0.07%
		OPEN		PROV	49,010	115,200	31,190	4,070	120	0	199,590	33,840	4,780	5,700	0	44,320	243,910	2.80%
		OPEN		FML 2-1	201,610	416,740	90,580	8,610	440	0	717,980	155,940	17,340	16,890	0	190,170	908,150	10.43%
		OPEN		INCO	11,340	19,340	3,950	240	0	0	34,870	11,160	1,080	880	0	13,120	47,990	0.55%
		SUB TOTAL OPEN			261,960	551,280	125,720	12,920	560	0	952,440	200,940	23,200	23,470	0	247,610	1,200,050	13.78%
		RESTRICT		FML 2-1	420	5,980	1,520	260	0	0	8,180	500	60	140	0	700	8,880	0.10%
		TOTAL			262,980	560,120	128,370	13,380	560	0	965,410	202,630	23,350	23,720	0	249,700	1,215,110	13.96%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
90	II	OPEN	1973	PROV	161,690	137,540	12,200	6,790	0	0	318,220	72,350	16,280	12,520	0	101,350	419,570	4.82%
91	II	OPEN	1973	PROV	55,810	47,040	2,950	1,270	0	0	107,070	18,000	1,590	3,200	0	22,790	129,860	1.49%
92	II	OPEN	1973	PROV	57,510	57,640	4,480	1,640	0	0	121,470	20,330	1,790	3,560	0	25,680	147,150	1.69%
93	II	OPEN	1973	PROV	94,080	51,370	5,800	2,000	0	0	153,250	19,540	1,300	3,910	0	24,750	178,000	2.04%
94	II	OPEN	1969	PROV	95,850	70,900	9,970	3,000	30	0	179,750	27,890	2,130	5,720	0	35,740	215,490	2.48%
95	II	OPEN	1973	PROV	124,650	93,700	9,490	4,110	0	0	231,950	45,470	3,960	7,880	0	57,310	289,260	3.32%
96	II	OPEN	1973	PROV	72,500	49,360	5,550	2,260	0	0	129,670	23,270	2,010	4,330	0	29,610	159,280	1.83%
97	II	OPEN	1973	PROV	98,000	71,810	2,750	1,440	0	0	174,000	22,630	2,040	4,390	0	29,060	203,060	2.33%
98	II	OPEN	1973	PROV	66,490	39,330	1,220	700	0	0	107,740	10,620	850	2,440	0	13,910	121,650	1.40%
99	II	OPEN	1969	PROV	43,320	38,930	1,810	430	0	0	85,290	8,870	850	1,890	0	11,610	96,900	1.11%
HAYES		OPEN		PROV	869,900	658,820	56,020	23,640	30	0	1,608,410	269,170	32,800	49,840	0	351,810	1,960,220	22.51%
RIVER		OPEN		FML 2-	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		TOTAL			869,900	658,820	56,020	23,640	30	0	1,608,410	269,170	32,800	49,840	0	351,810	1,960,220	22.51%

TABLE 19

ANNUAL ALLOWABLE HARVEST SUMMARY
BY FOREST SECTION AND SPECIES WORKING GROUP
PROVINCIAL CROWN LAND - OPEN ZONE

(Volumes in cubic metres per year)

FOREST UNIT	LEVEL	ZONE	PHOTO YEAR	DATA	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	BALSAM FIR	TAMARACK LARCH	EAST. CEDAR	TOTAL SOFT-WOOD	TREMBLING ASPEN	BALSAM POPLAR	WHITE BIRCH	OTHER HARD-WOOD	TOTAL HARD-WOOD	TOTAL	PER CENT
MANITOBA		CLOSED		PROV	67,860	42,930	11,680	4,350	1,340	50	128,210	35,100	1,950	2,030	1,210	40,290	168,500	1.95%
FOREST		CLOSED		FML 1	7,300	8,620	860	340	170	0	15,310	2,350	120	270	20	2,760	18,070	0.21%
ZONE		CLOSED		IWSA 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		CLOSED		IWSA 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		CLOSED		ST IWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		CLOSED		FML 2-1	5,130	12,180	5,920	430	0	0	23,660	8,770	660	910	0	10,360	34,020	0.39%
		CLOSED		FML 2-2	2010	4190	1860	100	0	0	8160	10170	2090	930	0	13190	21360	0.25%
		CLOSED		ST FML	7140	16370	7780	530	0	0	31820	18940	2750	1860	0	23550	55370	0.64%
		S T CLOSED			82,300	65,920	20,340	5,220	1,510	50	175,340	56,390	4,820	4,160	1,230	66,600	241,940	2.80%
		OPEN		PROV	1,199,860	1,083,600	135,320	43,830	31,110	2,710	2,476,330	580,180	86,150	79,000	21,750	767,080	3,243,410	37.50%
		OPEN		FML 1	131,470	76,620	20,800	5,460	13,370	0	247,920	62,460	5,010	5,590	2,320	75,380	323,300	3.74%
		OPEN		IWSA 1	84,540	67,270	17,790	4,970	2,880	0	197,450	45,370	1,570	2,120	0	49,060	246,510	2.85%
		OPEN		IWSA 2	42,520	98,040	39,280	27,820	770	0	208,430	140,120	14,140	21,030	420	175,710	382,140	4.42%
		OPEN		ST IWS	127,060	183,310	57,070	32,790	3,650	0	403,880	185,490	15,710	23,150	420	224,770	628,650	7.27%
		OPEN		FML 2-1	758,930	1,128,480	259,780	16,210	3,150	0	2,166,550	460,330	43,620	54,730	40	558,720	2,725,270	31.51%
		OPEN		FML 2-2	227,910	251,060	108,230	27,390	4,060	0	618,650	499,390	104,220	65,980	2,530	672,120	1,288,770	14.90%
		OPEN		ST FML	986,840	1,379,540	368,010	43,600	7,210	0	2,783,200	959,720	147,840	120,710	2,570	1,230,840	4,014,040	46.41%
		OPEN		INCO	11,340	19,340	3,950	240	0	0	34,870	11,160	1,080	880	0	13,120	47,990	0.55%
		S T OPEN			2,466,670	2,722,510	583,150	125,920	66,340	2,710	5,946,200	1,799,010	255,790	229,330	27,060	2,311,190	8,257,390	95.47%
		RESTRICT		PROV	2,350	2,700	4,250	1,160	0	0	10,460	7,300	1,290	1,260	2,170	12,020	22,480	0.26%
		RESTRICT		FML 1	16,290	8,810	2,890	760	120	0	28,800	6,140	440	670	90	7,240	36,040	0.42%
		RESTRICT		IWSA 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		RESTRICT		IWSA 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		RESTRICT		ST IWS	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		RESTRICT		FML 2-1	6,290	17,870	6,830	800	0	0	32,700	7,400	630	1,020	0	9,050	41,750	0.48%
		RESTRICT		FML 2-2	5,150	8,860	3,160	410	10	0	17,590	24,450	4,870	2,360	10	31,690	49,280	0.57%
		RESTRICT		ST FML	10,350	26,730	11,990	1,210	10	0	50,290	31,650	5,500	3,380	10	40,740	91,030	1.06%
		S T RESTR			28,900	38,240	19,130	3,150	130	0	89,550	45,290	7,230	5,210	2,270	60,000	149,560	1.73%
		COM PAST		PROV	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
		TOTAL			2,567,770	2,826,670	622,620	134,290	66,980	2,760	6,211,090	1,900,690	267,840	238,700	30,560	2,437,790	8,648,880	100.00%

TABLE 20
FOREST BALANCE BY FOREST SECTIONS
PROVINCIAL CROWN LANDS OPEN ZONE

(Volume in cubic meters per year)

FOREST SECTION	TOTAL ESTIMATED GROWTH	TOTAL DRAIN			FOREST BALANCE	DRAIN/ GROWTH IN %
		HARVEST	WILDFIRE	TOTAL		
SOFTWOODS						
ASPEN PARKLAND	33,660	186	2,288	2,474	31,186	7%
MOUNTAIN	835,550	322,024	66,600	388,624	446,926	47%
PINELAND	411,930	117,105	34,780	151,885	260,045	37%
LAKE WINNIPEG EAST	1,668,170	324,612	2,093,152	2,417,764	(749,594)	145%
INTERLAKE	787,560	71,583	1,237,454	1,309,037	(521,477)	166%
SASKATCHEWAN RIVER	784,980	330,218	1,162,208	1,492,426	(707,446)	190%
HIGHROCK	2,075,750	227,214	3,226,252	3,453,466	(1,377,716)	166%
CHURCHILL RIVER	964,680	0	285,502	285,502	679,178	30%
NELSON RIVER	2,039,630	202,216	1,672,746	1,874,962	164,668	92%
HAYES RIVER	2,807,490	0	4,280,070	4,280,070	(1,472,580)	152%
TOTAL SOFTWOOD	12,409,400	1,595,158	14,061,052	15,656,210	(3,246,810)	126%
HARDWOODS						
ASPEN PARKLAND	990,090	3,708	23,902	27,610	962,480	3%
MOUNTAIN	1,976,380	35,583	61,064	96,647	1,879,733	5%
PINELAND	405,760	58,090	42,790	100,880	304,880	25%
LAKE WINNIPEG EAST	837,560	45,269	527,976	573,265	264,295	68%
INTERLAKE	1,118,950	7,148	1,264,322	1,271,470	(152,520)	114%
SASKATCHEWAN RIVER	291,690	2,917	174,272	177,189	114,501	61%
HIGHROCK	586,640	2,031	780,260	782,291	(195,651)	133%
CHURCHILL RIVER	99,480	0	17,104	17,104	82,376	17%
NELSON RIVER	493,190	2,742	349,216	351,958	141,232	71%
HAYES RIVER	617,020	0	689,770	689,770	(72,750)	112%
TOTAL HARDWOOD	7,416,760	157,508	3,930,676	4,088,184	3,328,576	55%
TOTAL FOREST ZONE	19,826,160	1,752,666	17,991,728	19,744,394	81,766	100%

Based on 5 year average 1986 to 1990

Includes "causes" for which data is available only

TABLE 21
SPECIES DRAIN

(Drain/Growth in percent)

FOREST SECTION	PINE	SPRUCE	BALSAM FIR	OTHER SOFTWOOD	TOTAL SOFTWOOD	ASPEN POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
ASPEN PARKLAND	6%	6%	33%	33%	7%	3%	1%	3%	3%
MOUNTAIN	47%	48%	13%	90%	47%	5%	7%	5%	17%
PINELAND	47%	33%	14%	23%	37%	25%	26%	25%	31%
LAKE WINNIPEG EAST	133%	170%	92%	172%	145%	68%	76%	68%	119%
INTERLAKE	92%	216%	220%	367%	166%	114%	110%	114%	135%
SASKATCHEWAN RIVER	167%	216%	91%	331%	190%	59%	69%	61%	155%
HIGHROCK	142%	181%	106%	0%	166%	132%	144%	133%	159%
CHURCHILL RIVER *	40%	25%	0%	0%	30%	8%	29%	17%	28%
NELSON RIVER	93%	91%	81%	0%	92%	69%	89%	71%	88%
HAYES RIVER *	145%	161%	117%	0%	152%	109%	124%	112%	145%
MANITOBA FOREST ZONE	122%	130%	106%	152%	126%	56%	48%	55%	100%

Based on 5 year average 1986 to 1990 of drain due to wildfire and harvesting.

* Drain due entirely to wildfire.

TABLE 22

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1986 -1987

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PINE	GROWTH	2,580	214,800	172,100	1,005,040	338,220	407,570	793,580	279,660	561,600	1,373,740	5,149,110
	HARVEST	266	87,141	64,509	94,195	21,791	116,564	77,710	0	67,178	0	529,354
	WILDFIRE	0	0	50	580	10	30	1,180	420	1,370	44,500	48,140
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	266	87,141	64,559	94,775	21,801	116,594	78,890	420	68,548	44,500	577,494
	DRAIN/GROWTH	10%	41%	38%	9%	6%	29%	10%	0%	12%	3%	11%
	BALANCE	2,314	127,659	107,541	910,265	316,419	290,976	714,690	279,460	493,052	1,329,240	4,571,616
SPRUCE	GROWTH	29,050	564,480	179,290	578,670	371,320	365,530	1,271,820	684,800	1,456,930	1,394,680	6,896,570
	HARVEST	74	240,534	49,144	237,434	44,174	168,434	112,290	0	96,478	0	948,562
	WILDFIRE	0	100	220	760	450	40	11,880	8,000	1,920	278,180	301,550
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	74	240,634	49,364	238,194	44,624	168,474	124,170	8,000	98,398	278,180	1,250,112
	DRAIN/GROWTH	0%	43%	28%	41%	12%	46%	10%	1%	7%	20%	18%
	BALANCE	28,976	323,846	129,926	340,476	326,696	197,056	1,147,650	676,800	1,358,532	1,116,500	5,646,458
FIR	GROWTH	80	39,950	21,360	58,660	62,960	6,720	10,220	0	19,970	38,520	258,440
	HARVEST	0	635	2,863	496	235	0	0	0	0	0	4,229
	WILDFIRE	0	0	0	90	100	0	190	0	0	21,130	21,510
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	0	635	2,863	586	335	0	190	0	0	21,130	25,739
	DRAIN/GROWTH	0%	2%	13%	1%	1%	0%	2%	0%	0%	55%	10%
	BALANCE	80	39,315	18,497	58,074	62,625	6,720	10,030	0	19,970	17,390	232,701
OTHER SOFTWOODS	GROWTH	1,950	16,320	39,180	25,800	15,080	5,160	130	0	1,130	550	105,280
	HARVEST	0	141	3,399	141	11	0	0	0	0	0	3,692
	WILDFIRE	0	50	10	0	0	0	0	10	20	260	350
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	0	191	3,409	141	11	0	0	10	20	260	4,042
	DRAIN/GROWTH	0%	1%	9%	1%	0%	0%	0%	0%	2%	47%	4%
	BALANCE	1,950	16,129	35,771	25,659	15,049	5,160	130	(10)	1,110	290	101,238
TOTAL SOFTWOODS	GROWTH	33,660	835,550	411,930	1,668,170	787,560	784,980	2,075,750	964,680	2,039,630	2,807,490	12,409,400
	HARVEST	340	328,451	119,915	332,266	66,211	284,998	190,000	0	163,656	0	1,485,837
	WILDFIRE	0	150	280	1,430	560	70	13,250	8,430	3,310	344,070	371,550
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	340	328,601	120,195	333,696	66,771	285,068	203,250	8,430	166,966	344,070	1,857,387
	DRAIN/GROWTH	1%	39%	29%	20%	8%	36%	10%	1%	8%	12%	15%
	BALANCE	33,320	506,949	291,735	1,334,474	720,789	499,912	1,872,500	956,250	1,872,664	2,463,420	10,552,013

TABLE 22

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1986 -1987

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
POPLAR	GROWTH	658,620	1,787,170	358,250	773,610	1,023,020	252,350	515,590	57,230	442,370	511,320	6,379,530
	HARVEST	3,030	34,800	88,564	17,004	7,409	2,240	1,492	0	3,144	0	157,683
	WILDFIRE	110	920	0	1,100	980	0	2,940	60	270	42,890	49,270
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	3,140	35,720	88,564	18,104	8,389	2,240	4,432	60	3,414	42,890	206,953
	DRAIN/GROWTH	0%	2%	25%	2%	1%	1%	1%	0%	1%	8%	3%
	BALANCE	655,480	1,751,450	269,686	755,506	1,014,631	250,110	511,158	57,170	439,956	468,430	6,172,577
OTHER HARDWOODS	GROWTH	331,470	189,210	47,510	63,950	95,930	39,340	71,050	42,250	50,820	105,700	1,037,230
	HARVEST	412	9,547	9,059	3,712	1,252	662	442	0	526	0	25,612
	WILDFIRE	30	0	0	100	100	0	610	220	0	18,870	19,930
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	442	9,547	9,059	3,812	1,352	662	1,052	220	526	18,870	45,542
	DRAIN/GROWTH	0%	5%	19%	6%	1%	2%	1%	1%	1%	18%	4%
	BALANCE	331,028	179,663	38,451	60,138	94,578	38,678	69,998	42,030	50,294	86,830	991,688
TOTAL HARDWOODS	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	3,442	44,347	97,623	20,716	8,661	2,902	1,934	0	3,670	0	183,295
	WILDFIRE	140	920	0	1,200	1,080	0	3,550	280	270	61,760	69,200
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	3,582	45,267	97,623	21,916	9,741	2,902	5,484	280	3,940	61,760	252,495
	DRAIN/GROWTH	0%	2%	24%	3%	1%	1%	1%	0%	1%	10%	3%
	BALANCE	986,508	1,931,113	308,137	815,644	1,109,209	288,788	581,156	99,200	489,250	555,260	7,164,265
TOTAL ALL SPECIES	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	3,442	44,347	97,623	20,716	8,661	2,902	1,934	0	3,670	0	183,295
	WILDFIRE	140	920	0	1,200	1,080	0	3,550	280	270	61,760	69,200
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	3,582	45,267	97,623	21,916	9,741	2,902	5,484	280	3,940	61,760	252,495
	DRAIN/GROWTH	0%	2%	24%	3%	1%	1%	1%	0%	1%	10%	3%
	BALANCE	986,508	1,931,113	308,137	815,644	1,109,209	288,788	581,156	99,200	489,250	555,260	7,164,265

TABLE 23

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1987 - 1988

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PINE	GROWTH	2,580	214,800	172,100	1,006,040	338,220	407,570	793,580	279,880	561,600	1,373,740	5,149,110
	HARVEST	163	76,638	71,413	119,648	14,203	138,579	92,387	0	79,333	0	592,364
	WILDFIRE	0	310	47,780	671,410	4,180	420	44,700	55,780	30,130	731,060	1,585,770
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	163	76,948	119,193	791,058	18,383	138,999	137,087	55,780	109,463	731,060	2,178,134
	DRAIN/GROWTH	6%	36%	69%	79%	5%	34%	17%	20%	19%	53%	42%
	BALANCE	2,417	137,852	52,907	213,982	319,837	268,571	656,493	224,100	452,137	642,680	2,970,976
SPRUCE	GROWTH	29,050	564,480	179,290	578,670	371,320	365,530	1,271,820	684,800	1,456,930	1,394,680	6,896,570
	HARVEST	120	247,218	57,581	262,103	42,294	214,411	142,941	0	113,505	0	1,080,173
	WILDFIRE	0	6,130	13,510	375,250	14,980	6,770	140,070	36,420	83,930	845,930	1,522,990
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	120	253,348	71,091	637,353	57,274	221,181	283,011	36,420	197,435	845,930	2,603,163
	DRAIN/GROWTH	0%	45%	40%	110%	15%	61%	22%	5%	14%	61%	38%
	BALANCE	28,930	311,132	108,199	(58,683)	314,046	144,349	988,809	648,380	1,259,495	548,750	4,293,407
FIR	GROWTH	80	39,950	21,360	58,660	62,960	6,720	10,220	0	19,970	38,520	258,440
	HARVEST	0	4,753	3,852	334	1,302	0	0	0	0	0	10,241
	WILDFIRE	0	2,480	1,300	18,950	1,110	200	5,220	0	1,830	16,680	47,770
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	0	7,233	5,152	19,284	2,412	200	5,220	0	1,830	16,680	58,011
	DRAIN/GROWTH	0%	18%	24%	33%	4%	3%	51%	0%	9%	43%	22%
	BALANCE	80	32,717	16,208	39,376	60,548	6,520	5,000	0	18,140	21,840	200,429
OTHER SOFTWOODS	GROWTH	1,950	16,320	39,180	25,800	15,060	5,160	130	0	1,130	550	105,280
	HARVEST	0	909	3,671	2,157	0	0	0	0	56	0	6,793
	WILDFIRE	0	990	6,910	12,530	1,980	0	380	90	450	830	24,160
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	0	1,899	10,581	14,687	1,980	0	380	90	506	830	30,953
	DRAIN/GROWTH	0%	12%	27%	57%	13%	0%	292%	0%	45%	151%	29%
	BALANCE	1,950	14,421	28,599	11,113	13,080	5,160	(250)	(90)	624	(280)	74,327
TOTAL SOFTWOODS	GROWTH	33,660	835,550	411,930	1,668,170	787,560	784,980	2,075,750	964,680	2,039,630	2,807,490	12,409,400
	HARVEST	283	329,518	136,517	384,242	57,799	352,990	235,328	0	192,894	0	1,689,571
	WILDFIRE	0	9,910	69,500	1,078,140	22,250	7,390	190,370	92,290	116,340	1,594,500	3,180,690
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	283	339,428	206,017	1,462,382	80,049	360,380	425,698	92,290	309,234	1,594,500	4,870,261
	DRAIN/GROWTH	1%	41%	50%	88%	10%	46%	21%	10%	15%	57%	39%
	BALANCE	33,377	496,122	205,913	205,788	707,511	424,600	1,650,052	872,390	1,730,396	1,212,990	7,539,139

TABLE 23

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1987 - 1988

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
POPLAR	GROWTH	658,620	1,787,170	358,250	773,610	1,023,020	252,350	515,590	57,230	442,370	511,320	6,379,530
	HARVEST	2,990	27,972	61,391	36,486	5,369	2,599	1,733	0	1,119	0	139,659
	WILDFIRE	1,080	12,270	69,930	250,290	52,360	5,330	1,133,380	2,530	16,200	159,620	1,702,990
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	4,070	40,242	131,321	286,776	57,729	7,929	1,135,113	2,530	17,319	159,620	1,842,649
	DRAIN/GROWTH	1%	2%	37%	37%	6%	3%	220%	4%	4%	31%	29%
	BALANCE	654,550	1,746,928	226,929	486,834	965,291	244,421	(619,523)	54,700	425,051	351,700	4,536,881
OTHER HARDWOODS	GROWTH	331,470	189,210	47,510	63,950	95,930	39,340	71,050	42,250	50,820	105,700	1,037,230
	HARVEST	492	8,245	9,007	4,870	1,270	448	299	0	476	0	25,107
	WILDFIRE	160	2,520	6,380	25,230	2,450	800	44,480	4,530	2,840	43,440	132,830
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	652	10,765	15,387	30,100	3,720	1,248	44,779	4,530	3,316	43,440	157,937
	DRAIN/GROWTH	0%	6%	32%	47%	4%	3%	63%	11%	7%	41%	15%
	BALANCE	330,818	178,445	32,123	33,850	92,210	38,092	26,271	37,720	47,504	62,260	879,293
TOTAL HARDWOODS	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	3,482	36,217	70,398	41,356	6,639	3,047	2,032	0	1,595	0	164,766
	WILDFIRE	1,240	14,790	76,310	275,520	54,810	6,130	1,177,860	7,060	19,040	203,060	1,835,820
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	4,722	51,007	146,708	316,876	61,449	9,177	1,179,892	7,060	20,635	203,060	2,000,586
	DRAIN/GROWTH	0%	3%	36%	38%	5%	3%	201%	7%	4%	33%	27%
	BALANCE	985,368	1,925,373	259,052	520,684	1,057,501	282,513	(593,252)	92,420	472,555	413,960	5,416,174
TOTAL ALL SPECIES	GROWTH	1,023,750	2,811,930	817,690	2,505,730	1,906,510	1,076,670	2,662,390	1,064,160	2,532,820	3,424,510	19,826,160
	HARVEST	3,765	365,735	206,915	425,598	64,438	356,037	237,360	0	194,289	0	1,854,337
	WILDFIRE	1,240	24,700	145,810	1,353,660	77,060	13,520	1,368,230	99,350	135,380	1,797,560	5,016,510
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	5,005	390,435	352,725	1,779,258	141,498	369,557	1,605,590	99,350	329,669	1,797,560	6,870,847
	DRAIN/GROWTH	0%	14%	43%	71%	7%	34%	60%	9%	13%	52%	35%
	BALANCE	1,018,745	2,421,495	464,965	726,472	1,765,012	707,113	1,056,800	964,810	2,202,951	1,626,950	12,955,313

TABLE 24

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1988 - 1989

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PINE	GROWTH	2,580	214,800	172,100	1,005,040	338,220	407,570	793,580	279,880	561,600	1,373,740	5,149,110
	HARVEST	11	73,603	54,193	85,529	18,757	150,933	100,621	0	87,223	0	570,870
	WILDFIRE	140	540	41,780	4,160,880	17,650	593,420	15,430	6,790	87,780	2,033,750	6,978,160
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	151	74,143	95,973	4,266,409	36,407	744,353	116,051	6,790	175,003	2,033,750	7,549,030
	DRAIN/GROWTH	6%	35%	56%	425%	11%	183%	15%	2%	31%	148%	147%
	BALANCE	2,429	140,657	76,127	(3,261,369)	301,813	(336,783)	677,529	273,090	386,597	(660,010)	(2,399,920)
SPRUCE	GROWTH	29,050	564,480	179,290	578,670	371,320	365,530	1,271,820	684,800	1,456,930	1,394,680	6,896,570
	HARVEST	80	251,714	40,143	251,826	53,360	236,562	157,708	0	127,588	0	1,118,981
	WILDFIRE	6,350	8,130	22,340	2,481,370	160,620	335,310	71,660	178,580	290,350	2,364,740	5,919,450
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	6,430	259,844	62,483	2,733,196	213,980	571,872	229,368	178,580	417,938	2,364,740	7,038,431
	DRAIN/GROWTH	22%	46%	35%	472%	58%	156%	18%	26%	29%	170%	102%
	BALANCE	22,620	304,636	116,807	(2,154,526)	157,340	(206,342)	1,042,452	506,220	1,038,992	(970,060)	(141,861)
FIR	GROWTH	80	39,950	21,360	58,660	62,960	6,720	10,220	0	19,970	38,520	258,440
	HARVEST	0	13,269	1,314	2,648	0	0	0	0	0	0	17,231
	WILDFIRE	130	270	1,660	186,610	21,670	4,990	570	0	2,310	47,700	265,910
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	130	13,539	2,974	189,258	21,670	4,990	570	0	2,310	47,700	283,141
	DRAIN/GROWTH	163%	34%	14%	323%	34%	74%	6%	0%	12%	124%	110%
	BALANCE	(50)	26,411	18,386	(130,598)	41,290	1,730	9,650	0	17,660	(9,180)	(24,701)
OTHER SOFTWOODS	GROWTH	1,950	16,320	39,180	25,800	15,060	5,160	130	0	1,130	550	105,280
	HARVEST	13	66	1,972	492	0	0	0	0	0	0	2,543
	WILDFIRE	2,260	240	9,560	89,950	5,580	5,930	190	140	1,050	3,080	117,980
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	2,273	306	11,532	90,442	5,580	5,930	190	140	1,050	3,080	120,523
	DRAIN/GROWTH	117%	2%	29%	351%	37%	115%	146%	0%	93%	560%	114%
	BALANCE	(323)	16,014	27,648	(64,642)	9,480	(770)	(60)	(140)	80	(2,530)	(15,243)
TOTAL SOFTWOODS	GROWTH	33,660	835,550	411,930	1,668,170	787,560	784,980	2,075,750	964,680	2,039,630	2,807,490	12,409,400
	HARVEST	104	338,652	97,622	340,495	72,117	387,495	258,329	0	214,811	0	1,709,625
	WILDFIRE	8,880	9,180	75,340	6,938,810	205,520	939,650	87,850	185,510	381,490	4,449,270	13,281,500
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	8,984	347,832	172,962	7,279,305	277,637	1,327,145	346,179	185,510	596,301	4,449,270	14,991,125
	DRAIN/GROWTH	27%	42%	42%	436%	35%	169%	17%	19%	29%	158%	121%
	BALANCE	24,676	487,718	238,968	(5,611,135)	509,923	(542,165)	1,729,571	779,170	1,443,329	(1,641,780)	(2,581,725)

TABLE 24

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1988 - 1989

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
POPLAR	GROWTH	658,820	1,787,170	358,250	773,610	1,023,020	252,350	515,590	57,230	442,370	511,320	6,379,530
	HARVEST	3,808	24,163	44,751	38,084	4,505	2,528	1,685	0	2,374	0	121,698
	WILDFIRE	39,560	9,540	73,540	1,476,150	202,780	87,890	11,910	800	38,120	596,680	2,536,970
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	43,168	33,703	118,291	1,514,234	207,285	90,418	13,595	800	40,494	596,680	2,658,668
	DRAIN/GROWTH	7%	2%	33%	196%	20%	36%	3%	1%	9%	117%	42%
	BALANCE	615,452	1,753,467	239,959	(740,624)	815,735	161,932	501,995	56,430	401,876	(85,360)	3,720,862
OTHER HARDWOODS	GROWTH	331,470	189,210	47,510	63,950	95,930	39,340	71,050	42,250	50,820	105,700	1,037,230
	HARVEST	330	9,721	7,126	4,988	1,345	599	400	0	865	0	25,374
	WILDFIRE	8,410	920	6,370	125,190	19,030	16,850	2,210	4,310	7,760	150,400	341,450
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	8,740	10,641	13,496	130,178	20,375	17,449	2,610	4,310	8,625	150,400	366,824
	DRAIN/GROWTH	3%	6%	28%	204%	21%	44%	4%	10%	17%	142%	35%
	BALANCE	322,730	178,569	34,014	(66,228)	75,555	21,891	68,440	37,940	42,195	(44,700)	670,406
TOTAL HARDWOODS	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	3,938	33,884	51,877	43,072	5,850	3,127	2,085	0	3,239	0	147,072
	WILDFIRE	47,970	10,460	79,910	1,601,340	221,810	104,740	14,120	5,110	45,880	747,080	2,878,420
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	51,908	44,344	131,787	1,644,412	227,660	107,867	16,205	5,110	49,119	747,080	3,025,492
	DRAIN/GROWTH	5%	2%	32%	196%	20%	37%	3%	5%	10%	121%	41%
	BALANCE	938,182	1,932,036	273,973	(806,852)	891,290	183,823	570,435	94,370	444,071	(130,060)	4,391,268
TOTAL ALL SPECIES	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	3,938	33,884	51,877	43,072	5,850	3,127	2,085	0	3,239	0	147,072
	WILDFIRE	47,970	10,460	79,910	1,601,340	221,810	104,740	14,120	5,110	45,880	747,080	2,878,420
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	51,908	44,344	131,787	1,644,412	227,660	107,867	16,205	5,110	49,119	747,080	3,025,492
	DRAIN/GROWTH	5%	2%	32%	196%	20%	37%	3%	5%	10%	121%	41%
	BALANCE	938,182	1,932,036	273,973	(806,852)	891,290	183,823	570,435	94,370	444,071	(130,060)	4,391,268

TABLE 25

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1989 - 1990

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PINE	GROWTH	2,580	214,800	172,100	1,005,040	338,220	407,570	793,580	279,880	561,600	1,373,740	5,149,110
	HARVEST	51	89,313	71,986	92,923	18,554	175,656	117,103	0	99,188	0	664,774
	WILDFIRE	40	82,890	2,060	1,324,310	1,416,630	2,120,080	5,110,850	501,060	2,054,760	7,124,940	19,737,620
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	91	172,203	74,046	1,417,233	1,435,184	2,295,736	5,227,953	501,060	2,153,948	7,124,940	20,402,394
	DRAIN/GROWTH	4%	80%	43%	141%	424%	563%	659%	179%	384%	519%	396%
	BALANCE	2,489	42,597	98,054	(412,193)	(1,096,964)	(1,888,166)	(4,434,373)	(221,180)	(1,592,348)	(5,751,200)	(15,253,284)
SPRUCE	GROWTH	29,050	564,480	179,290	578,670	371,320	365,530	1,271,820	684,800	1,456,930	1,394,680	6,896,570
	HARVEST	30	233,417	46,051	206,840	36,498	216,701	144,469	0	118,188	0	1,004,194
	WILDFIRE	1,140	151,770	5,140	925,890	3,603,100	2,636,610	10,633,060	634,980	5,619,690	7,711,630	31,923,010
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	1,170	385,187	53,191	1,132,730	3,639,598	2,853,311	10,777,529	634,980	5,737,878	7,711,630	32,927,204
	DRAIN/GROWTH	4%	68%	30%	196%	980%	781%	847%	93%	394%	553%	477%
	BALANCE	27,880	179,293	126,099	(554,060)	(3,268,278)	(2,487,781)	(9,505,709)	49,820	(4,280,948)	(6,316,950)	(26,030,634)
FIR	GROWTH	80	39,950	21,360	58,660	62,960	6,720	10,220	0	19,970	38,520	258,440
	HARVEST	0	0	763	3,445	0	0	0	0	0	0	4,208
	WILDFIRE	0	4,100	1,510	54,300	667,760	25,180	48,060	0	75,310	139,500	1,015,720
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	0	4,100	2,273	57,745	667,760	25,180	48,060	0	75,310	139,500	1,019,928
	DRAIN/GROWTH	0%	10%	11%	98%	1061%	375%	470%	0%	377%	362%	395%
	BALANCE	80	35,850	19,087	915	(604,800)	(18,460)	(37,840)	0	(55,340)	(100,980)	(761,488)
OTHER SOFTWOODS	GROWTH	1,950	16,320	39,180	25,800	15,060	5,160	130	0	1,130	550	105,280
	HARVEST	0	22	2,662	1,065	0	0	0	0	296	0	4,045
	WILDFIRE	850	71,020	10,500	114,030	268,470	79,490	42,910	1,580	20,670	22,810	632,330
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	850	71,042	13,162	115,095	268,470	79,490	42,910	1,580	20,966	22,810	636,375
	DRAIN/GROWTH	44%	435%	34%	446%	1783%	1541%	33008%	0%	1855%	4147%	604%
	BALANCE	1,100	(54,722)	26,018	(89,295)	(253,410)	(74,330)	(42,780)	(1,580)	(19,836)	(22,260)	(531,095)
TOTAL SOFTWOODS	GROWTH	33,660	835,550	411,930	1,668,170	787,560	784,980	2,075,750	964,680	2,039,630	2,807,490	12,409,400
	HARVEST	81	322,752	123,462	304,273	55,052	392,357	261,572	0	217,672	0	1,677,221
	WILDFIRE	2,030	309,780	19,210	2,418,530	5,955,960	4,861,360	15,834,880	1,137,620	7,770,430	14,998,880	53,308,680
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	2,111	632,532	142,672	2,722,803	6,011,012	5,253,717	16,096,452	1,137,620	7,988,102	14,998,880	54,985,901
	DRAIN/GROWTH	6%	76%	35%	163%	763%	669%	775%	118%	392%	534%	443%
	BALANCE	31,549	203,018	269,258	(1,054,633)	(5,223,452)	(4,468,737)	(14,020,702)	(172,940)	(5,948,472)	(12,191,390)	(42,576,501)

TABLE 25

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1989 - 1990

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
POPLAR	GROWTH	658,620	1,787,170	358,250	773,610	1,023,020	252,350	515,590	57,230	442,370	511,320	6,379,530
	HARVEST	3,033	24,224	25,737	69,256	6,025	1,886	1,257	0	1,832	0	133,250
	WILDFIRE	42,290	256,000	47,340	684,320	5,532,080	645,010	2,244,570	20,620	1,453,870	1,992,040	12,918,140
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	45,323	280,224	73,077	753,576	5,538,105	646,896	2,245,827	20,620	1,455,702	1,992,040	13,051,390
	DRAIN/GROWTH	7%	16%	20%	97%	541%	256%	436%	36%	329%	390%	205%
	BALANCE	613,297	1,506,946	285,173	20,034	(4,515,085)	(394,546)	(1,730,237)	36,610	(1,013,332)	(1,480,720)	(6,671,860)
OTHER HARDWOODS	GROWTH	331,470	189,210	47,510	63,950	95,930	39,340	71,050	42,250	50,820	105,700	1,037,230
	HARVEST	552	4,978	9,124	3,451	485	771	514	0	461	0	20,336
	WILDFIRE	10,430	22,590	4,970	71,670	498,750	115,040	460,810	51,370	211,170	443,360	1,890,160
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	10,982	27,568	14,094	75,121	499,235	115,811	461,324	51,370	211,631	443,360	1,910,496
	DRAIN/GROWTH	3%	15%	30%	117%	520%	294%	649%	122%	416%	419%	184%
	BALANCE	320,488	161,642	33,416	(11,171)	(403,305)	(76,471)	(390,274)	(9,120)	(160,811)	(337,660)	(873,266)
TOTAL HARDWOODS	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	3,585	29,202	34,861	72,707	6,510	2,657	1,771	0	2,293	0	153,586
	WILDFIRE	52,720	278,590	52,310	755,990	6,030,830	760,050	2,705,380	71,990	1,665,040	2,435,400	14,808,300
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	56,305	307,792	87,171	828,697	6,037,340	762,707	2,707,151	71,990	1,667,333	2,435,400	14,961,886
	DRAIN/GROWTH	6%	16%	21%	99%	540%	261%	461%	72%	338%	395%	202%
	BALANCE	933,785	1,668,588	318,589	8,863	(4,918,390)	(471,017)	(2,120,511)	27,490	(1,174,143)	(1,818,380)	(7,545,126)
TOTAL ALL SPECIES	GROWTH	1,023,750	2,811,930	817,690	2,505,730	1,906,510	1,076,670	2,662,390	1,064,160	2,532,820	3,424,510	19,826,160
	HARVEST	3,666	351,954	158,323	376,980	61,562	395,014	263,343	0	219,965	0	1,830,807
	WILDFIRE	54,750	588,370	71,520	3,174,520	11,986,790	5,621,410	18,540,260	1,209,610	9,435,470	17,434,260	68,116,980
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	58,416	940,324	229,843	3,551,500	12,048,352	6,016,424	18,803,603	1,209,610	9,655,435	17,434,260	69,947,787
	DRAIN/GROWTH	6%	33%	28%	142%	632%	559%	706%	114%	381%	509%	353%
	BALANCE	965,334	1,871,606	587,847	(1,045,770)	(10,141,842)	(4,939,754)	(16,141,213)	(145,450)	(7,122,615)	(14,009,770)	(50,121,627)

TABLE 26

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1990 - 1991

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
PINE	GROWTH	2,580	214,800	172,100	1,005,040	338,220	407,570	793,580	279,880	561,600	1,373,740	5,149,110
	HARVEST	67	89,127	50,579	90,880	45,132	99,872	81,714	0	101,342	0	558,713
	WILDFIRE	10	1,290	400	15,530	190	1,380	1,230	690	15,780	4,320	40,820
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	77	90,417	50,979	106,410	45,322	101,252	82,944	690	117,122	4,320	599,533
	DRAIN/GROWTH	3%	42%	30%	11%	13%	25%	10%	0%	21%	0%	12%
	BALANCE	2,503	124,383	121,121	898,630	292,898	306,318	710,636	279,190	444,478	1,369,420	4,549,577
SPRUCE	GROWTH	29,050	564,480	179,290	578,670	371,320	365,530	1,271,820	684,800	1,456,930	1,394,680	6,896,570
	HARVEST	56	201,620	53,770	167,434	60,261	133,307	109,067	0	120,705	0	846,220
	WILDFIRE	430	2,590	4,970	12,450	2,170	1,130	3,680	2,970	74,830	9,000	114,220
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	486	204,210	58,740	179,884	62,431	134,437	112,747	2,970	195,535	9,000	960,440
	DRAIN/GROWTH	2%	36%	33%	31%	17%	37%	9%	0%	13%	1%	14%
	BALANCE	28,564	360,270	120,550	398,786	308,889	231,093	1,159,073	681,830	1,261,395	1,385,680	5,936,130
FIR	GROWTH	80	39,950	21,360	58,660	62,960	6,720	10,220	0	19,970	38,520	258,440
	HARVEST	0	0	1,364	3,246	1,343	71	58	0	0	0	6,082
	WILDFIRE	0	10	260	60	480	50	0	0	1,340	310	2,530
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	0	10	1,624	3,326	1,823	121	58	0	1,340	310	8,612
	DRAIN/GROWTH	0%	0%	8%	6%	3%	2%	1%	0%	7%	1%	3%
	BALANCE	80	39,940	19,736	55,334	61,137	6,599	10,162	0	18,630	38,210	249,828
OTHER SOFTWOODS	GROWTH	1,950	16,320	39,180	25,800	15,060	5,160	130	0	1,130	550	105,280
	HARVEST	0	0	2,295	223	0	0	0	0	0	0	2,518
	WILDFIRE	90	90	3,940	790	140	10	0	0	210	0	5,270
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	90	90	6,235	1,013	140	10	0	0	210	0	7,788
	DRAIN/GROWTH	5%	1%	16%	4%	1%	0%	0%	0%	19%	0%	7%
	BALANCE	1,860	16,230	32,945	24,787	14,920	5,150	130	0	920	550	97,492
TOTAL SOFTWOODS	GROWTH	33,660	835,550	411,930	1,668,170	787,560	784,980	2,075,750	964,680	2,039,630	2,807,490	12,409,400
	HARVEST	123	290,747	108,008	261,783	106,736	233,250	190,839	0	222,047	0	1,413,533
	WILDFIRE	530	3,980	9,570	28,850	2,960	2,570	4,910	3,660	92,160	13,630	162,840
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	653	294,727	117,578	290,633	109,716	235,820	195,749	3,660	314,207	13,630	1,576,373
	DRAIN/GROWTH	2%	35%	29%	17%	14%	30%	9%	0%	15%	0%	13%
	BALANCE	33,007	540,823	294,352	1,377,537	677,844	549,160	1,880,001	961,020	1,725,423	2,793,860	10,833,027

TABLE 26

MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1990 - 1991

(Volume in cubic metres per year)

WORKING GROUP	ITEM	ASPEN PARKLAND	MOUNTAIN	PINELAND	LAKE WINNIPEG EAST	INTERLAKE	SASKATCHEWAN RIVER	HIGHROCK	CHURCHILL RIVER	NELSON RIVER	HAYES RIVER	TOTAL
POPLAR	GROWTH	658,620	1,787,170	358,250	773,610	1,023,020	252,350	515,590	57,230	442,370	511,320	6,379,530
	HARVEST	3,722	27,122	27,365	45,016	7,274	2,066	1,708	0	2,504	0	116,797
	WILDFIRE	14,170	500	5,010	5,460	12,360	390	350	300	13,320	1,160	53,040
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	17,892	27,622	32,375	50,476	19,654	2,476	2,058	300	15,824	1,160	169,837
	DRAIN/GROWTH	3%	2%	9%	7%	2%	1%	0%	1%	4%	0%	3%
	BALANCE	640,728	1,759,548	325,875	723,134	1,003,366	249,874	513,532	56,930	426,546	510,160	6,209,693
OTHER HARDWOODS	GROWTH	331,470	189,210	47,510	63,950	95,930	39,340	71,050	42,250	50,820	105,700	1,037,230
	HARVEST	368	7,141	8,329	3,580	804	766	627	0	409	0	22,024
	WILDFIRE	3,270	60	410	370	700	50	40	780	2,530	390	8,600
	INSECTS											0
	DISEASE											0
	TOTAL DRAIN	3,638	7,201	8,739	3,950	1,504	816	667	780	2,939	390	30,624
	DRAIN/GROWTH	1%	4%	18%	6%	2%	2%	1%	2%	6%	0%	3%
	BALANCE	327,832	182,009	38,771	60,000	94,426	38,524	70,383	41,470	47,881	105,310	1,006,606
TOTAL HARDWOODS	GROWTH	990,090	1,976,380	405,760	837,560	1,118,950	291,690	586,640	99,480	493,190	617,020	7,416,760
	HARVEST	4,090	34,263	35,694	48,596	8,078	2,852	2,335	0	2,913	0	138,821
	WILDFIRE	17,440	560	5,420	5,830	13,060	440	390	1,080	15,850	1,550	61,640
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	21,530	34,823	41,114	54,426	21,158	3,292	2,725	1,080	18,763	1,550	200,461
	DRAIN/GROWTH	2%	2%	10%	6%	2%	1%	0%	1%	4%	0%	3%
	BALANCE	968,560	1,941,557	364,646	783,134	1,097,792	288,398	583,915	98,400	474,427	615,470	7,216,299
TOTAL ALL SPECIES	GROWTH	1,023,750	2,811,930	817,690	2,505,730	1,906,510	1,076,670	2,662,390	1,064,160	2,532,820	3,424,510	19,826,160
	HARVEST	4,213	325,010	143,702	310,379	114,814	236,102	193,174	0	224,960	0	1,552,354
	WILDFIRE	17,970	4,540	14,990	34,680	16,060	3,010	5,300	4,740	108,010	15,180	224,480
	INSECTS	0	0	0	0	0	0	0	0	0	0	0
	DISEASE	0	0	0	0	0	0	0	0	0	0	0
	TOTAL DRAIN	22,183	329,550	158,692	345,059	130,874	239,112	198,474	4,740	332,970	15,180	1,776,834
	DRAIN/GROWTH	2%	12%	19%	14%	7%	22%	7%	0%	13%	0%	9%
	BALANCE	1,001,567	2,482,380	658,998	2,160,671	1,775,636	837,558	2,463,916	1,059,420	2,199,850	3,409,330	18,049,326

TABLE 27

ANNUAL HARVEST
BY FOREST SECTION AND SPECIES GROUPS
1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	TOTAL SPRUCE	BALSAM FIR	TAMARACK LARCH	WHITE CEDAR	TOTAL SOFTWOOD	POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
ASPEN	1986/87	266	0	74	74	0	0	0	340	3,030	412	3,442	3,782
PARKLAND	1987/88	163	0	120	120	0	0	0	283	2,990	492	3,482	3,765
	1988/89	11	0	80	80	0	13	0	104	3,608	330	3,938	4,042
	1989/90	51	0	30	30	0	0	0	81	3,033	552	3,585	3,666
	1990/91	67	0	56	56	0	0	0	123	3,722	368	4,090	4,213
	5 YR TOT	558	0	360	360	0	13	0	931	16,383	2,154	18,537	19,468
	5 YR AVG	112	0	72	72	0	3	0	186	3,277	431	3,707	3,894
MOUNTAIN	1986/87	87,141	98,560	141,974	240,534	635	141	0	328,451	34,800	9,547	44,347	372,798
	1987/88	76,636	116,304	130,914	247,218	4,753	909	0	329,518	27,972	8,245	36,217	365,735
	1988/89	73,603	122,303	129,411	251,714	13,269	66	0	338,652	24,163	9,721	33,884	372,536
	1989/90	89,313	96,114	137,303	233,417	0	22	0	322,752	24,224	4,978	29,202	351,954
	1990/91	89,127	106,474	95,146	201,620	0	0	0	290,747	27,122	7,141	34,263	325,010
	5 YR TOT	415,822	539,755	634,748	1,174,503	18,657	1,138	0	1,610,120	138,281	39,632	177,913	1,788,033
	5 YR AVG	83,164	107,951	126,950	234,901	3,731	228	0	322,024	27,656	7,926	35,583	357,607
PINELAND	1986/87	64,509	46,515	2,629	49,144	2,863	2,294	1,105	119,915	88,564	9,059	97,623	217,538
	1987/88	71,413	52,112	5,469	57,581	3,852	1,949	1,722	136,517	61,391	9,007	70,398	206,915
	1988/89	54,193	37,418	2,725	40,143	1,314	1,269	703	97,622	44,751	7,126	51,877	149,499
	1989/90	71,986	46,298	1,753	48,051	763	1,347	1,315	123,462	25,737	9,124	34,861	158,323
	1990/91	50,579	50,936	2,834	53,770	1,364	1,364	931	108,008	27,365	8,329	35,694	143,702
	5 YR TOT	312,680	233,279	15,410	248,689	10,156	8,223	5,776	585,524	247,808	42,645	290,453	875,977
	5 YR AVG	62,536	46,656	3,082	49,738	2,031	1,645	1,155	117,105	49,562	8,529	58,091	175,195
LAKE	1986/87	94,195	231,900	5,534	237,434	496	141	0	332,266	17,004	3,712	20,716	352,982
WINNIPEG	1987/88	119,648	257,817	4,286	262,103	334	2,157	0	384,242	36,486	4,870	41,356	425,598
EAST	1988/89	85,529	249,131	2,695	251,826	2,648	492	0	340,495	38,084	4,988	43,072	383,567
	1989/90	92,923	201,388	5,452	206,840	3,445	1,065	0	304,273	69,256	3,451	72,707	376,980
	1990/91	90,880	163,014	4,420	167,434	3,246	223	0	261,783	45,016	3,580	48,596	310,379
	5 YR TOT	483,175	1,103,250	22,387	1,125,637	10,169	4,078	0	1,623,059	205,846	20,601	226,447	1,849,506
	5 YR AVG	96,635	220,650	4,477	225,127	2,034	816	0	324,612	41,169	4,120	45,289	369,901

TABLE 27

ANNUAL HARVEST
BY FOREST SECTION AND SPECIES GROUPS
1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	TOTAL SPRUCE	BALSAM FIR	TAMARACK LARCH	WHITE CEDAR	TOTAL SOFTWOOD	POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
INTERLAKE	1986/87	21,791	34,152	10,022	44,174	235	11	0	66,211	7,409	1,252	8,661	74,872
	1987/88	14,203	36,086	6,208	42,294	1,302	0	0	57,799	5,369	1,270	6,639	64,438
	1988/89	18,757	47,801	5,559	53,360	0	0	0	72,117	4,505	1,345	5,850	77,967
	1989/90	18,554	17,151	19,347	36,498	0	0	0	55,052	6,025	485	6,510	61,562
	1990/91	45,132	41,100	19,161	60,261	1,343	0	0	106,736	7,274	804	8,078	114,814
	5 YR TOT	118,437	176,290	60,297	236,587	2,880	11	0	357,915	30,582	5,156	35,738	393,653
	5 YR AVG	23,687	35,258	12,059	47,317	576	2	0	71,583	6,116	1,031	7,146	78,731
SASKATCHEWAN RIVER	1986/87	116,564	86,972	81,462	168,434	0	0	0	284,998	2,240	662	2,902	287,900
	1987/88	138,579	98,334	116,077	214,411	0	0	0	352,990	2,599	448	3,047	356,037
	1988/89	150,933	128,570	107,992	236,562	0	0	0	387,495	2,528	599	3,127	390,622
	1989/90	175,656	109,730	106,971	216,701	0	0	0	392,357	1,886	771	2,657	395,014
	1990/91	99,872	47,824	85,483	133,307	71	0	0	233,250	2,086	766	2,852	236,102
	5 YR TOT	681,604	471,430	497,985	969,415	71	0	0	1,651,090	11,339	3,246	14,585	1,665,675
	5 YR AVG	136,321	94,286	99,597	193,883	14	0	0	330,218	2,268	649	2,917	333,135
HIGHROCK	1986/87	77,710	57,982	54,308	112,290	0	0	0	190,000	1,492	442	1,934	191,934
	1987/88	92,387	65,556	77,385	142,941	0	0	0	235,328	1,733	299	2,032	237,360
	1988/89	100,621	85,714	71,994	157,708	0	0	0	258,329	1,685	400	2,085	260,414
	1989/90	117,103	73,154	71,315	144,469	0	0	0	261,572	1,257	514	1,771	263,343
	1990/91	81,714	39,128	69,939	109,067	58	0	0	190,839	1,708	627	2,335	193,174
	5 YR TOT	469,535	321,534	344,941	666,475	58	0	0	1,136,068	7,875	2,282	10,157	1,146,225
	5 YR AVG	93,907	64,307	68,988	133,295	12	0	0	227,214	1,575	456	2,031	229,245
CHURCHILL RIVER	1986/87	0	0	0	0	0	0	0	0	0	0	0	0
	1987/88	0	0	0	0	0	0	0	0	0	0	0	0
	1988/89	0	0	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 27

ANNUAL HARVEST
BY FOREST SECTION AND SPECIES GROUPS
1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	JACK PINE	BLACK SPRUCE	WHITE SPRUCE	TOTAL SPRUCE	BALSAM FIR	TAMARACK LARCH	WHITE CEDAR	TOTAL SOFTWOOD	POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL
NELSON	1986/87	67,178	51,331	45,147	96,478	0	0	0	163,656	3,144	526	3,670	167,326
RIVER	1987/88	79,333	52,983	60,522	113,505	0	56	0	192,894	1,119	476	1,595	194,489
	1988/89	87,223	73,797	53,791	127,588	0	0	0	214,811	2,374	865	3,239	218,050
	1989/90	99,188	60,963	57,225	118,188	0	296	0	217,672	1,832	461	2,293	219,965
	1990/91	101,342	52,753	67,952	120,705	0	0	0	222,047	2,504	409	2,913	224,960
	5 YR TOT	434,264	291,827	284,637	576,464	0	352	0	1,011,080	10,973	2,737	13,710	1,024,790
	5 YR AVG	86,853	58,365	56,927	115,293	0	70	0	202,216	2,195	547	2,742	204,958
HAYES	1986/87	0	0	0	0	0	0	0	0	0	0	0	0
RIVER	1987/88	0	0	0	0	0	0	0	0	0	0	0	0
	1988/89	0	0	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	0	0
MANITOBA	1986/87	529,354	607,412	341,150	948,562	4,229	2,587	1,105	1,485,837	157,663	25,612	183,295	1,669,132
FOREST	1987/88	592,364	679,192	400,981	1,080,173	10,241	5,071	1,722	1,689,571	139,659	25,107	164,766	1,854,337
ZONE	1988/89	570,870	744,734	374,247	1,118,981	17,231	1,840	703	1,709,625	121,698	25,374	147,072	1,856,697
	1989/90	664,774	604,798	399,396	1,004,194	4,208	2,730	1,315	1,677,221	133,250	20,336	153,586	1,830,807
	1990/91	558,713	501,229	344,991	846,220	6,082	1,587	931	1,413,533	116,797	22,024	138,821	1,552,354
	5 YR TOT	2,916,075	3,137,365	1,860,765	4,998,130	41,991	13,815	5,776	7,975,787	669,087	118,453	787,540	8,763,327
	5 YR AVG	583,215	627,473	372,153	999,626	8,398	2,763	1,155	1,595,157	133,817	23,691	157,508	1,752,665

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	XMAS TREES (number)	LUMBER								
			WHITE SPRUCE	BALSAM FIR	JACK PINE	OTHER SOFTWOOD	TOTAL SOFTWOOD	POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL LUMBER
ASPEN PARKLAND	1986/87	50	0	0	0	0	0	40	0	40	40
	1987/88	30	23	0	0	0	23	288	0	288	311
	1988/89	115	69	0	0	0	69	136	0	136	205
	1989/90	115	8	0	0	0	8	31	0	31	39
	1990/91	136	6	0	0	0	6	25	0	25	31
	5 YR TOT	446	106	0	0	0	106	520	0	520	626
	5 YR AVG	89	21	0	0	0	21	104	0	104	125
MOUNTAIN	1986/87	1,548	131,926	280	29,379	141	161,726	24,344	2,362	26,706	188,432
	1987/88	1,125	129,031	26	43,305	909	173,271	19,793	3,344	23,137	196,408
	1988/89	1,829	120,333	0	36,315	66	164,714	15,162	4,166	19,328	184,042
	1989/90	1,681	136,158	0	50,728	22	186,908	9,464	543	10,007	196,915
	1990/91	1,658	93,433	0	44,877	0	138,310	13,536	1,751	15,286	153,596
	5 YR TOT	7,841	610,881	306	204,604	1,138	824,929	82,298	12,166	94,464	919,393
	5 YR AVG	1,528	123,776	61	40,921	228	164,986	16,460	2,433	18,893	183,879
PINELAND	1986/87	6,720	272	12	27,649	1,189	29,122	34,600	1,839	36,639	65,761
	1987/88	4,836	679	0	33,558	262	34,499	39,638	1,804	41,442	75,941
	1988/89	4,578	1,020	0	17,798	585	19,383	35,008	889	35,897	55,280
	1989/90	2,946	745	0	12,032	32	12,809	11,598	2,159	13,757	26,566
	1990/91	3,064	1,485	0	8,230	432	10,147	9,706	2,478	12,184	22,331
	5 YR TOT	22,144	4,201	12	99,267	2,480	105,960	130,750	9,169	139,919	245,879
	5 YR AVG	4,429	840	2	19,853	496	21,192	26,150	1,834	27,984	49,176
LAKE WINNIPEG EAST	1986/87	9,904	4,185	2	13,610	141	17,938	8,209	1,840	9,848	27,786
	1987/88	9,019	1,930	0	25,396	2,157	29,483	10,784	1,310	12,094	41,577
	1988/89	8,965	1,722	0	23,164	492	25,378	18,918	1,417	20,335	45,713
	1989/90	7,875	3,660	151	15,964	1,065	20,840	24,261	279	24,560	45,400
	1990/91	7,365	2,852	0	18,021	223	21,096	11,499	1,550	13,049	34,145
	5 YR TOT	43,028	14,349	153	96,155	4,078	114,735	73,690	6,196	79,886	194,621
	5 YR AVG	8,606	2,870	31	19,231	816	22,947	14,738	1,239	15,977	38,924

TABLE 28
ANNUAL FOREST PRODUCT HARVEST
1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	XMAS TREES (number)	LUMBER					POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL LUMBER
			WHITE SPRUCE	BALSAM FIR	JACK PINE	OTHER SOFTWOOD	TOTAL SOFTWOOD				
INTERLAKE	1986/87	260	6,835	28	3,497	11	12,371	1,965	0	1,965	14,336
	1987/88	215	5,241	926	3,142	0	9,311	516	197	713	10,024
	1988/89	167	5,142	0	1,376	0	6,518	708	0	708	7,226
	1989/90	109	18,279	0	2,208	0	20,487	313	0	313	20,800
	1990/91	151	18,040	128	16,596	0	34,764	1,297	41	1,338	36,102
	5 YR TOT	902	55,537	1,084	26,819	11	83,451	4,799	238	5,037	88,488
	5 YR AVG	180	11,107	217	5,364	2	16,690	960	48	1,007	17,698
SASKATCHEWAN RIVER	1986/87	22	81,295	0	56,292	0	137,587	17	1	18	137,605
	1987/88	154	115,681	0	71,519	0	187,200	12	0	12	187,212
	1988/89	20	107,605	0	63,585	0	171,190	0	0	0	171,190
	1989/90	17	106,778	0	84,373	0	191,151	0	0	0	191,151
	1990/91	14	85,335	71	58,999	0	144,405	3	3	6	144,411
	5 YR TOT	227	496,694	71	334,768	0	831,533	32	4	36	831,569
	5 YR AVG	45	99,339	14	66,954	0	166,307	6	1	7	166,314
HIGHROCK	1986/87	15	54,196	0	37,528	0	91,724	11	1	12	91,736
	1987/88	103	77,121	0	47,679	0	124,800	8	0	8	124,808
	1988/89	13	71,736	0	42,390	0	114,126	0	0	0	114,126
	1989/90	12	71,186	0	56,249	0	127,435	0	0	0	127,435
	1990/91	11	69,819	58	48,271	0	118,148	3	3	6	118,154
	5 YR TOT	154	344,058	58	232,117	0	576,233	22	4	26	576,259
	5 YR AVG	31	68,812	12	46,423	0	115,247	4	1	5	115,252
CHURCHILL RIVER	1986/87	0	0	0	0	0	0	0	0	0	0
	1987/88	0	0	0	0	0	0	0	0	0	0
	1988/89	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0

TABLE 28
ANNUAL FOREST PRODUCT HARVEST
1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	XMAS TREES (number)	LUMBER WHITE SPRUCE	LUMBER BALSAM FIR	LUMBER JACK PINE	LUMBER OTHER SOFTWOOD	LUMBER TOTAL SOFTWOOD	POPLAR	OTHER HARDWOOD	TOTAL HARDWOOD	TOTAL LUMBER
NELSON RIVER	1986/87	30	43,709	0	28,763	0	72,472	0	0	0	72,472
	1987/88	30	58,360	0	38,377	56	96,793	195	0	195	96,988
	1988/89	100	51,845	0	34,918	0	86,663	48	51	99	86,762
	1989/90	100	56,482	0	46,136	296	102,914	198	60	258	103,172
	1990/91	0	66,896	0	54,713	0	121,609	246	30	276	121,885
	5 YR TOT	260	277,292	0	202,907	352	480,451	687	141	828	481,279
	5 YR AVG	52	55,458	0	40,561	70	96,090	137	28	166	96,256
HAYES RIVER	1986/87	0	0	0	0	0	0	0	0	0	0
	1987/88	0	0	0	0	0	0	0	0	0	0
	1988/89	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0
MANITOBA FOREST ZONE	1986/87	18,549	324,418	322	196,718	1,482	522,940	69,385	5,843	75,228	598,168
	1987/88	15,512	388,066	954	262,976	3,384	655,380	71,234	6,655	77,889	733,269
	1988/89	15,487	367,472	0	219,446	1,123	588,041	69,980	6,523	76,503	664,544
	1989/90	12,855	393,296	151	267,690	1,415	662,552	45,985	3,041	48,926	711,478
	1990/91	12,399	337,866	257	249,707	655	588,485	36,314	5,856	42,170	630,655
	5 YR TOT	74,802	1,811,118	1,684	1,196,537	8,059	3,017,398	292,798	27,918	320,716	3,338,114
	5 YR AVG	14,960	362,224	337	239,307	1,612	603,480	58,560	5,584	64,143	667,623

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	PULPWOOD						PIECE PRODUCTS								
								RR TIES	POLES	POLES		POSTS	POSTS	POSTS		TOTAL
		BLACK SPRUCE	BALSAM FIR	JACK PINE	TOTAL SOFTWOOD	POPLAR	TOTAL PULP	JACK PINE	WHITE CEDAR	JACK PINE	TOTAL POLES	JACK PINE	TAMARACK LARCH	WHITE CEDAR	TOTAL POSTS	PIECE PRODUCTS
ASPEN PARKLAND	1986/87	0	0	0	0	0	0	0	0	0	0	62	0	0	62	62
	1987/88	0	0	0	0	0	0	0	0	0	0	79	0	0	79	79
	1988/89	0	0	0	0	0	0	0	0	0	0	0	13	0	13	13
	1989/90	0	0	0	0	0	0	0	0	0	0	30	0	0	30	30
	1990/91	0	0	0	0	0	0	0	0	0	0	16	0	0	16	16
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	187	13	0	200	200
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	37	3	0	40	40
MOUNTAIN	1986/87	98,550	355	29,406	128,321	125	128,446	16	0	159	159	15,716	0	0	15,716	15,891
	1987/88	116,304	4,727	22,906	143,937	206	144,143	0	0	0	0	6,441	0	0	6,441	6,441
	1988/89	122,303	13,269	27,473	163,045	30	163,075	5	0	5	5	6,265	0	0	6,265	6,275
	1989/90	96,114	0	15,663	111,777	5,306	117,083	103	0	0	0	19,350	0	0	19,350	19,453
	1990/91	106,474	0	22,435	128,909	274	129,183	47	0	0	0	15,833	0	0	15,833	15,880
	5 YR TOT	539,755	18,351	117,883	675,989	5,941	681,930	171	0	164	164	63,605	0	0	63,605	63,940
	5 YR AVG	107,951	3,670	23,577	135,198	1,188	136,386	34	0	33	33	12,721	0	0	12,721	12,788
PINELAND	1986/87	46,515	2,851	29,946	79,312	36,106	115,418	481	0	0	0	0	1,105	1,105	2,210	2,691
	1987/88	52,112	3,852	31,276	87,240	10,755	97,995	0	35	0	35	0	1,687	1,687	3,374	3,409
	1988/89	37,418	1,314	31,376	70,108	1,163	71,271	0	0	0	0	0	704	703	1,407	1,407
	1989/90	46,298	763	55,084	102,145	6,595	108,740	674	0	0	0	0	1,315	1,315	2,630	3,304
	1990/91	50,936	1,364	38,468	90,768	9,428	100,196	0	0	8	8	0	932	931	1,863	1,871
	5 YR TOT	233,279	10,144	186,150	429,573	64,047	493,620	1,155	35	8	43	0	5,743	5,741	11,484	12,682
	5 YR AVG	46,656	2,029	37,230	85,915	12,809	98,724	231	7	2	9	0	1,149	1,148	2,297	2,536
LAKE WINNIPEG EAST	1986/87	231,900	494	76,377	308,771	1,384	310,155	317	0	22	22	264	0	0	264	603
	1987/88	257,817	334	88,800	346,951	16,020	362,971	200	0	15	15	815	0	0	815	1,030
	1988/89	249,131	2,648	55,512	307,291	7,511	314,802	258	0	0	0	653	0	0	653	911
	1989/90	201,388	3,294	66,095	270,777	25,134	295,911	330	0	0	0	1,456	0	0	1,456	1,786
	1990/91	163,014	3,246	62,839	229,099	17,191	246,290	48	0	0	0	670	0	0	670	718
	5 YR TOT	1,103,250	10,016	349,623	1,462,889	67,240	1,530,129	1,153	0	37	37	3,858	0	0	3,858	5,048
	5 YR AVG	220,650	2,003	69,925	292,578	13,448	306,026	231	0	7	7	772	0	0	772	1,010

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	PULPWOOD						PIECE PRODUCTS								
		BLACK SPRUCE	BALSAM FIR	JACK PINE	TOTAL SOFTWOOD	POPLAR	TOTAL PULP	RR TIES JACK PINE	POLES WHITE CEDAR	POLES JACK PINE	TOTAL POLES	POSTS JACK PINE	POSTS TAMARACK LARCH	POSTS WHITE CEDAR	TOTAL POSTS	TOTAL PIECE PRODUCTS
INTERLAKE	1986/87	34,152	207	11,956	46,315	94	46,409	0	0	0	0	1,680	0	0	1,680	1,680
	1987/88	36,086	374	7,151	43,611	0	43,611	0	0	0	0	467	0	0	467	467
	1988/89	47,801	0	13,305	61,106	0	61,106	0	0	0	0	1,120	0	0	1,120	1,120
	1989/90	17,151	0	10,500	27,651	113	27,764	0	0	0	0	911	0	0	911	911
	1990/91	41,100	1,215	23,375	65,690	250	65,940	0	0	0	0	279	0	0	279	279
	5 YR TOT	176,290	1,796	66,287	244,373	457	244,830	0	0	0	0	4,457	0	0	4,457	4,457
	5 YR AVG	35,258	359	13,257	48,875	91	48,966	0	0	0	0	891	0	0	891	891
SASKATCHEWAN RIVER	1986/87	86,972	0	58,378	145,350	0	145,350	344	0	1	1	112	0	0	112	457
	1987/88	98,334	0	64,180	162,514	0	162,514	0	0	34	34	69	0	0	69	103
	1988/89	129,570	0	85,714	214,284	0	214,284	0	0	0	0	26	0	0	26	26
	1989/90	109,730	0	89,648	199,378	0	199,378	0	0	0	0	59	0	0	59	59
	1990/91	47,824	0	39,128	86,952	0	86,952	0	0	0	0	18	0	0	18	18
	5 YR TOT	471,430	0	337,048	808,478	0	808,478	344	0	35	35	284	0	0	284	663
	5 YR AVG	94,286	0	67,410	161,696	0	161,696	69	0	7	7	57	0	0	57	133
HIGHROCK	1986/87	57,982	0	38,919	96,901	0	96,901	230	0	0	0	74	0	0	74	304
	1987/88	65,556	0	42,787	108,343	0	108,343	0	0	22	22	46	0	0	46	68
	1988/89	85,714	0	57,142	142,856	0	142,856	0	0	0	0	17	0	0	17	17
	1989/90	73,154	0	59,765	132,919	0	132,919	0	0	0	0	40	0	0	40	40
	1990/91	39,128	0	32,014	71,142	0	71,142	0	0	0	0	15	0	0	15	15
	5 YR TOT	321,534	0	230,627	552,161	0	552,161	230	0	22	22	192	0	0	192	444
	5 YR AVG	64,307	0	46,125	110,432	0	110,432	46	0	4	4	38	0	0	38	88
CHURCHILL RIVER	1986/87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1987/88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1988/89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	PULPWOOD						PIECE PRODUCTS								
		BLACK SPRUCE	BALSAM FIR	JACK PINE	TOTAL SOFTWOOD	POPLAR	TOTAL PULP	RR TIES JACK PINE	POLES WHITE CEDAR	POLES JACK PINE	TOTAL POLES	POSTS JACK PINE	POSTS TAMARACK LARCH	POSTS WHITE CEDAR	TOTAL POSTS	TOTAL PIECE PRODUCTS
NELSON	1986/87	51,331	0	33,075	84,406	0	84,406	0	0	0	0	9	0	0	9	9
RIVER	1987/88	52,983	0	35,322	88,305	0	88,305	0	0	0	0	1	0	0	1	1
	1988/89	73,797	0	47,769	121,566	0	121,566	0	0	0	0	10	0	0	10	10
	1989/90	60,963	0	49,896	110,859	0	110,859	0	0	0	0	2	0	0	2	2
	1990/91	52,753	0	43,662	96,415	0	96,415	0	0	0	0	0	0	0	0	0
	5 YR TOT	291,827	0	209,724	501,551	0	501,551	0	0	0	0	22	0	0	22	22
	5 YR AVG	58,365	0	41,945	100,310	0	100,310	0	0	0	0	4	0	0	4	4
HAYES	1986/87				0		0				0				0	0
RIVER	1987/88				0		0				0				0	0
	1988/89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANITOBA	1986/87	607,412	3,907	278,057	889,376	37,709	927,085	1,388	0	182	182	17,917	1,105	1,105	20,127	21,697
FOREST	1987/88	679,192	9,287	292,422	980,901	26,981	1,007,882	200	35	71	106	7,918	1,687	1,687	11,292	11,598
ZONE	1988/89	744,734	17,231	318,291	1,080,256	8,704	1,088,960	263	0	5	5	8,091	717	703	9,511	9,779
	1989/90	604,798	4,057	346,651	955,506	37,148	992,654	1,107	0	0	0	21,848	1,315	1,315	24,478	25,585
	1990/91	501,229	5,825	261,921	768,975	27,143	796,118	95	0	8	8	16,831	932	931	18,694	18,797
	5 YR TOT	3,137,365	40,307	1,497,342	4,675,014	137,685	4,812,699	3,053	35	266	301	72,605	5,756	5,741	84,102	87,456
	5 YR AVG	627,473	8,061	299,468	935,003	27,537	962,540	611	7	53	60	14,521	1,151	1,148	16,820	17,491

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

		FUELWOOD GREEN							FUELWOOD DRY			SLABS AND TOPS					
FOREST SECTION	YEAR	WHITE SPRUCE	JACK PINE	TOTAL SOFT WOOD	POPLAR	OTHER HARD WOOD	TOTAL HARD WOOD	TOTAL GREEN FUELWD	JACK PINE	POPLAR	TOTAL DRY FUELWD	JACK PINE	WHITE SPRUCE	TOTAL SOFT WOOD	POPLAR	TOTAL SLABS& TOPS	TOTAL FUEL WOOD
ASPEN PARKLAND	1986/87	0	130	130	2,705	412	3,117	3,247	0	285	285	0	0	0	0	0	3,532
	1987/88	12	0	12	2,389	492	2,881	2,893	0	313	313	0	0	0	0	0	3,206
	1988/89	0	0	0	2,811	330	3,141	3,141	0	661	661	0	0	0	0	0	3,802
	1989/90	0	0	0	2,290	552	2,842	2,842	0	712	712	0	0	0	0	0	3,554
	1990/91	0	2	2	3,261	368	3,629	3,631	0	436	436	0	0	0	0	0	4,067
	5 YR TOT	12	132	144	13,456	2,154	15,610	15,754	0	2,407	2,407	0	0	0	0	0	18,161
	5 YR AVG	2	26	29	2,691	431	3,122	3,151	0	481	481	0	0	0	0	0	3,632
MOUNTAIN	1986/87	963	421	1,384	7,370	7,185	14,555	15,939	2,960	2,961	5,921	0	0	0	0	0	21,860
	1987/88	82	321	403	6,109	4,901	11,010	11,413	1,865	1,864	3,729	1	1	2	0	2	15,144
	1988/89	93	385	478	6,797	5,555	12,352	12,830	2,170	2,170	4,340	9	8	17	4	21	17,191
	1989/90	151	259	410	7,221	4,436	11,656	12,066	2,218	2,218	4,436	29	30	59	15	74	16,576
	1990/91	28	356	384	9,409	5,390	14,799	15,183	3,895	3,895	7,790	19	19	38	9	47	23,020
	5 YR TOT	1,317	1,742	3,059	36,906	27,466	64,372	67,431	13,108	13,108	26,216	58	58	116	28	144	93,791
	5 YR AVG	263	348	612	7,381	5,493	12,874	13,486	2,622	2,622	5,243	12	12	23	6	29	18,758
PINELAND	1986/87	34	1,566	1,600	14,664	7,220	21,884	23,484	2,545	2,546	5,091	896	896	1,792	448	2,240	30,815
	1987/88	816	546	1,362	8,887	7,203	15,890	17,252	2,057	2,057	4,114	508	507	1,015	254	1,269	22,635
	1988/89	6	1,112	1,118	6,293	6,237	12,530	13,648	2,209	2,209	4,418	156	156	312	78	390	18,456
	1989/90	35	713	748	4,894	6,965	11,859	12,607	2,510	2,510	5,020	279	278	557	140	697	18,324
	1990/91	14	508	522	6,031	5,851	11,882	12,404	2,031	2,032	4,063	337	337	674	168	842	17,309
	5 YR TOT	905	4,445	5,350	40,569	33,476	74,045	79,395	11,352	11,354	22,706	2,176	2,174	4,350	1,088	5,438	107,539
	5 YR AVG	181	889	1,070	8,114	6,695	14,809	15,879	2,270	2,271	4,541	435	435	870	218	1,088	21,508
LAKE WINNIPEG EAST	1986/87	954	897	1,851	5,035	2,072	7,107	8,958	2,314	2,315	4,629	124	124	248	62	310	13,897
	1987/88	1,088	1,169	2,257	7,644	3,560	11,204	13,461	1,985	1,985	3,970	105	105	210	53	263	17,694
	1988/89	264	1,992	2,256	8,363	3,571	11,954	14,210	3,242	3,243	6,485	58	58	116	29	145	20,840
	1989/90	470	3,936	4,406	15,775	3,172	18,947	23,353	3,821	3,821	7,642	490	490	980	245	1,225	32,220
	1990/91	508	4,371	4,879	12,343	2,030	14,373	19,252	3,872	3,873	7,745	219	219	438	110	548	27,545
	5 YR TOT	3,284	12,365	15,649	49,160	14,405	63,585	79,234	15,234	15,237	30,471	996	996	1,992	499	2,491	112,196
	5 YR AVG	657	2,473	3,130	9,836	2,881	12,717	15,847	3,047	3,047	6,094	199	199	398	100	498	22,439

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

		FUELWOOD GREEN							FUELWOOD DRY			SLABS AND TOPS					
FOREST SECTION	YEAR	WHITE SPRUCE	JACK PINE	TOTAL SOFT WOOD	POPLAR	OTHER HARD WOOD	TOTAL HARD WOOD	TOTAL GREEN FUELWD	JACK PINE	POPLAR	TOTAL DRY FUELWD	JACK PINE	WHITE SPRUCE	TOTAL SOFT WOOD	POPLAR	TOTAL SLABS& TOPS	TOTAL FUEL WOOD
INTERLAKE	1986/87	65	1,225	1,290	3,016	1,252	4,270	5,560	2,311	2,312	4,623	39	39	78	20	98	10,281
	1987/88	75	951	1,026	3,253	1,073	4,326	5,352	1,600	1,600	3,200	1	1	2	0	2	8,554
	1988/89	115	1,264	1,379	2,404	1,345	3,749	5,128	1,390	1,391	2,781	5	5	10	2	12	7,921
	1989/90	20	278	298	1,989	485	2,474	2,772	3,609	3,610	7,219	0	0	0	0	0	9,991
	1990/91	373	482	855	2,074	763	2,837	3,692	3,653	3,653	7,306	0	0	0	0	0	10,998
	5 YR TOT	648	4,200	4,848	12,736	4,918	17,656	22,504	12,563	12,566	25,129	45	45	90	22	112	47,745
	5 YR AVG	130	840	970	2,548	984	3,531	4,501	2,513	2,513	5,026	9	9	18	4	22	9,549
SASKATCHEWAN RIVER	1986/87	144	180	324	1,082	661	1,743	2,067	1,140	1,141	2,281	0	0	0	0	0	4,348
	1987/88	252	422	674	1,405	448	1,853	2,527	1,183	1,182	2,365	0	0	0	0	0	4,892
	1988/89	260	185	445	1,307	599	1,906	2,351	1,220	1,221	2,441	0	0	0	0	0	4,792
	1989/90	146	209	355	674	771	1,445	1,800	1,213	1,212	2,425	0	0	0	0	0	4,225
	1990/91	124	174	298	553	763	1,316	1,614	1,529	1,528	3,057	5	4	9	2	11	4,682
	5 YR TOT	926	1,170	2,096	5,021	3,242	8,263	10,359	6,285	6,284	12,569	5	4	9	2	11	22,939
	5 YR AVG	185	234	419	1,004	648	1,653	2,072	1,257	1,257	2,514	1	1	2	0	2	4,588
HIGHROCK	1986/87	96	120	216	721	441	1,162	1,378	761	760	1,521	0	0	0	0	0	2,899
	1987/88	168	282	450	937	299	1,236	1,686	789	788	1,577	0	0	0	0	0	3,263
	1988/89	173	123	296	871	400	1,271	1,567	814	814	1,628	0	0	0	0	0	3,195
	1989/90	98	139	237	449	514	963	1,200	808	808	1,616	0	0	0	0	0	2,816
	1990/91	101	143	244	453	624	1,077	1,321	1,251	1,250	2,501	4	3	7	2	9	3,831
	5 YR TOT	636	807	1,443	3,431	2,278	5,709	7,152	4,423	4,420	8,843	4	3	7	2	9	16,004
	5 YR AVG	127	161	289	686	456	1,142	1,430	885	884	1,769	1	1	1	0	2	3,201
CHURCHILL RIVER	1986/87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1987/88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1988/89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

		FUELWOOD GREEN							FUELWOOD DRY			SLABS AND TOPS					
FOREST SECTION	YEAR	WHITE SPRUCE	JACK PINE	TOTAL SOFT WOOD	POPLAR	OTHER HARD WOOD	TOTAL HARD WOOD	TOTAL GREEN FUELWD	JACK PINE	POPLAR	TOTAL DRY FUELWD	JACK PINE	WHITE SPRUCE	TOTAL SOFT WOOD	POPLAR	TOTAL SLABS& TOPS	TOTAL FUEL WOOD
NELSON RIVER	1986/87	1,422	3,203	4,625	1,032	526	1,558	6,183	2,112	2,112	4,224	0	0	0	0	0	10,407
	1987/88	2,157	3,162	5,319	924	476	1,400	6,719	2,466	0	2,466	0	0	0	0	0	9,185
	1988/89	1,797	2,779	4,576	626	814	1,442	6,018	1,698	1,698	3,396	0	0	0	0	0	9,414
	1989/90	740	1,855	2,595	339	401	740	3,335	1,296	1,295	2,591	0	0	0	0	0	5,926
	1990/91	1,051	1,310	2,361	605	379	984	3,345	1,653	1,652	3,305	1	1	2	1	3	6,653
	5 YR TOT	7,167	12,309	19,476	3,526	2,596	6,124	25,600	9,225	6,757	15,982	1	1	2	1	3	41,585
	5 YR AVG	1,433	2,462	3,895	706	519	1,225	5,120	1,845	1,351	3,196	0	0	0	0	1	8,317
HAYES RIVER	1986/87			0			0	0			0			0		0	0
	1987/88			0			0	0			0			0		0	0
	1988/89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1989/90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1990/91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 YR AVG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANITOBA FOREST ZONE	1986/87	3,678	7,742	11,420	35,627	19,769	55,396	66,816	14,143	14,432	28,575	1,059	1,059	2,118	530	2,648	98,039
	1987/88	4,650	6,853	11,503	31,348	18,452	49,800	61,303	11,945	9,789	21,734	615	614	1,229	307	1,536	84,573
	1988/89	2,708	7,840	10,548	29,494	18,851	48,345	58,893	12,743	13,407	26,150	228	227	455	113	568	85,611
	1989/90	1,660	7,389	9,049	33,631	17,295	50,926	59,975	15,475	16,186	31,661	798	798	1,596	400	1,996	93,632
	1990/91	2,199	7,346	9,545	34,729	16,168	50,897	60,442	17,884	18,319	36,203	585	583	1,168	292	1,460	98,105
	5 YR TOT	14,895	37,170	52,065	164,829	90,535	255,364	307,429	72,190	72,133	144,323	3,285	3,281	6,566	1,642	8,208	459,960
	5 YR AVG	2,979	7,434	10,413	32,966	18,107	51,073	61,486	14,438	14,427	28,865	657	656	1,313	328	1,642	91,992

TABLE 28
ANNUAL FOREST PRODUCT HARVEST
1986-1990

(Volume in cubic metres)

FOREST SECTION	YEAR	JACK PINE MINE TIMBERS	JACK PINE ROUND TIMBERS	WHITE SPRUCE ROUND TIMBERS	TOTAL ROUND TIMBER	TOTAL VOLUME HARVEST
ASPEN	1986/87	0	74	74	148	3,782
PARKLAND	1987/88	0	84	85	169	3,765
	1988/89	0	11	11	22	4,042
	1989/90	0	21	22	43	3,666
	1990/91	0	49	50	99	4,213
	5 YR TOT	0	239	242	481	19,468
	5 YR AVG	0	48	48	96	3,894
MOUNTAIN	1986/87	0	9,084	9,085	18,169	372,798
	1987/88	0	1,799	1,800	3,599	365,735
	1988/89	0	976	977	1,953	372,536
	1989/90	0	963	964	1,927	351,954
	1990/91	0	1,665	1,666	3,331	325,010
	5 YR TOT	0	14,487	14,492	28,979	1,788,033
	5 YR AVG	0	2,897	2,898	5,796	357,607
PINELAND	1986/87	0	1,426	1,427	2,853	217,538
	1987/88	0	3,468	3,467	6,935	206,915
	1988/89	0	1,542	1,543	3,085	149,499
	1989/90	0	694	695	1,389	158,323
	1990/91	0	997	998	1,995	143,702
	5 YR TOT	0	8,127	8,130	16,257	875,977
	5 YR AVG	0	1,625	1,626	3,251	175,195
LAKE	1986/87	0	270	271	541	352,982
WINNIPEG	1987/88	0	1,163	1,163	2,326	425,598
EAST	1988/89	0	650	651	1,301	383,567
	1989/90	0	831	832	1,663	376,980
	1990/91	0	840	841	1,681	310,379
	5 YR TOT	0	3,754	3,758	7,512	1,849,506
	5 YR AVG	0	751	752	1,502	369,901

TABLE 28
ANNUAL FOREST PRODUCT HARVEST
1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	JACK PINE MINE TIMBERS	JACK PINE ROUND TIMBERS	WHITE SPRUCE ROUND TIMBERS	TOTAL ROUND TIMBER	TOTAL VOLUME HARVEST
INTERLAKE	1986/87	0	1,083	1,083	2,166	74,872
	1987/88	0	891	891	1,782	64,438
	1988/89	0	297	297	594	77 967
	1989/90	0	1,048	1,048	2,096	61,562
	1990/91	0	747	748	1,495	114,814
	5 YR TOT	0	4,066	4,067	8,133	393,653
	5 YR AVG	0	813	813	1,627	78,731
SASKATCHEWAN RIVER	1986/87	94	23	23	46	287,900
	1987/88	1,028	144	144	288	356,037
	1988/89	75	128	127	255	390,622
	1989/90	107	47	47	94	395,014
	1990/91	0	19	20	39	236,102
	5 YR TOT	1,304	361	361	722	1,665,675
	5 YR AVG	261	72	72	144	333,135
HIGHROCK	1986/87	63	15	16	31	191,934
	1987/88	686	96	96	192	237,380
	1988/89	50	85	85	170	260,414
	1989/90	71	31	31	62	263,343
	1990/91	0	16	16	32	193,174
	5 YR TOT	870	243	244	487	1,146,225
	5 YR AVG	174	49	49	97	229,245
CHURCHILL RIVER	1986/87	0	0	0	0	0
	1987/88	0	0	0	0	0
	1988/89	0	0	0	0	0
	1989/90	0	0	0	0	0
	1990/91	0	0	0	0	0
	5 YR TOT	0	0	0	0	0
	5 YR AVG	0	0	0	0	0

TABLE 28

ANNUAL FOREST PRODUCT HARVEST

1986 - 1990

(Volume in cubic metres)

FOREST SECTION	YEAR	JACK PINE MINE TIMBERS	JACK PINE ROUND TIMBERS	WHITE SPRUCE ROUND TIMBERS	TOTAL ROUND TIMBER	TOTAL VOLUME HARVEST
NELSON	1986/87	0	16	16	32	167,326
RIVER	1987/88	0	5	5	10	194,489
	1988/89	0	149	149	298	218,050
	1989/90	0	3	3	6	219,965
	1990/91	0	3	4	7	224,960
	5 YR TOT	0	176	177	353	1,024,790
	5 YR AVG	0	35	35	71	204,958
HAYES	1986/87				0	0
RIVER	1987/88				0	0
	1988/89	0	0	0	0	0
	1989/90	0	0	0	0	0
	1990/91	0	0	0	0	0
	5 YR TOT	0	0	0	0	0
	5 YR AVG	0	0	0	0	0
MANITOBA	1986/87	157	11,991	11,995	23,986	1,689,132
FOREST	1987/88	1,714	7,650	7,651	15,301	1,854,337
ZONE	1988/89	125	3,838	3,840	7,678	1,856,697
	1989/90	178	3,638	3,642	7,280	1,830,807
	1990/91	0	4,336	4,343	8,679	1,552,354
	5 YR TOT	2,174	31,453	31,471	62,924	8,763,327
	5 YR AVG	435	6,291	6,294	12,585	1,752,665

TABLE 29
SUMMARY OF MANITOBA SILVICULTURAL ACTIVITIES
MANITOBA FORESTRY BRANCH RENEWAL
1986-1990

		TREE PLANTING		HECTARES SEEDED					
Year	Agency	Hectares	1000's	BS	WS	JP	Total	Hectares Scarified	Total Ha Treated
1990	Forestry Branch	2777	6615	1.2	1.7	2.1	5	1351	4133
1989	Forestry Branch	3626	7561			244	244	826	4696
1988	Forestry Branch	3432	8800				0	622	4054
1987	Forestry Branch	3193	7714				0	741	3934
1986	Forestry Branch	2533	6075				0	433	2966
	Total	15561	36765	1.2	1.7	246.1	249	3973	19783

TABLE 30
SUMMARY OF MANITOBA SILVICULTURAL ACTIVITIES
ABITIBI-PRICE INC. RENEWAL
1986-1990

		TREE PLANTING		HECTARES SEEDED					
Year	Agency	Hectares	1000's	BS	WS	JP	Total	Hectares Scarified	Total Ha Treated
1990	Abitibi-Price Inc.	950	1840				0		950
1989	Abitibi-Price Inc.	989	1940	288		952	1240		2229
1988	Abitibi-Price Inc.	1350	2835				0		1350
1987	Abitibi-Price Inc.	1254	2601				0		1254
1986	Abitibi-Price Inc.	582	1309				0	2	584
	Total	5125	10525	288		952	1240	2	6367

TABLE 31
SUMMARY OF MANITOBA SILVICULTURAL ACTIVITIES
REPAP MANITOBA RENEWAL
1986-1990

		TREE PLANTING		HECTARES SEEDED					
Year	Agency	Hectares	1000's	BS	WS	JP	Total	Hectares Scarified	Total Ha Treated
1990	Repap Man.	2550	5318				0	1271	3821
1989	Repap Man.	2070	4041	35	24	36	95	590	2755
1988	Manfor Ltd.	2244	4054			35	35	1154	3433
1987	Manfor Ltd.	1247	3081			27	27	1016	2290
1986	Manfor Ltd.	1031	2828				0	663	1694
	Total	9142	19322	35	24	98	157	4694	13993

TABLE 32
SUMMARY OF MANITOBA SILVICULTURAL ACTIVITIES
TOTAL PROVINCIAL FOREST BRANCH RENEWAL
1986-1990

		TREE PLANTING		HECTARES SEEDED					
Year	Agency	Hectares	1000's	BS	WS	JP	Total	Hectares Scarified	Total Ha Treated
1990	Province of Man.	6277	13773	1.2	1.7	2.1	5	2622	8904
1989	Province of Man.	6685	13542	323	24	1232	1579	1416	9680
1988	Province of Man.	7026	15689	0	0	35	35	1776	8837
1987	Province of Man.	5694	13396	0	0	27	27	1757	7478
1986	Province of Man.	4146	10212	0	0	0	0	1098	5244
	Total	29828	66612	324.2	25.7	12.96	1646	8669	40143

TABLE 33
ABITIBI-PRICE INC.
STAND TENDING 1986-1990

Year	Agency	HECTARES TENDED			
		Man. Release	Herb. Release	Spaced	Total
1990	Abitibi-Price Inc.			11	11
1989	Abitibi-Price Inc.		192	82	274
1988	Abitibi-Price Inc.			246	246
1987	Abitibi-Price Inc.		558	200	758
1986	Abitibi-Price Inc.		131	107	238
	Total	0	881	646	1527

TABLE 34
MANITOBA FORESTRY BRANCH
STAND TENDING 1986-1990

Year	Agency	HECTARES TENDED			
		Man. Release	Herb. Release	Spaced	Total
1990	Forestry Branch		256		256
1989	Forestry Branch	115		103	218
1988	Forestry Branch				0
1987	Forestry Branch	342		415	757
1986	Forestry Branch	145			154
	Total	611	256	518	1385

TABLE 35
REPAP MANITOBA
STAND TENDING 1986-1990

Year	Agency	HECTARES TENDED			
		Man. Release	Herb. Release	Spaced	Total
1990	Repap Manitoba Inc.				0
1989	Repap Manitoba Inc.				0
1988	Repap Manitoba Inc.	52		300	352
1987	Manfor Ltd.		70	341	411
1986	Manfor Ltd.		45	150	195
	Total	52	115	791	958

TABLE 36
TOTAL PROVINCIAL
STAND TENDING 1986-1990

		HECTARES TENDED			
Year	Agency	Man. Release	Herb. Release	Spaced	Total
1990	Province of Man.	0	256	11	267
1989	Province of Man.	115	192	185	492
1988	Province of Man.	52	0	546	598
1987	Province of Man.	342	628	956	1926
1986	Province of Man.	154	176	257	587
	Total	663	1252	1955	3870

TABLE 37
MANITOBA FORESTRY BRANCH
SITE PREPARATION 1986-1990

Year	Agency	HECTARES SITE PREPARED				
		Burn	Windrow	Mechanical	Herbicide	Total
1990	Forestry Branch			3216	30	3246
1989	Forestry Branch			2473		2473
1988	Forestry Branch			2462		2462
1987	Forestry Branch			2507		2507
1986	Forestry Branch			3506		3506
	Total	0	0	14164	30	14194

TABLE 38
ABITIBI-PRICE INC.
SITE PREPARATION 1986-1990

Year	Agency	HECTARES SITE PREPARED				
		Burn	Windrow	Mechanical	Herbicide	Total
1990	Abitibi-Price Inc.			1153	25	1178
1989	Abitibi-Price Inc.	100	229	789		1118
1988	Abitibi-Price Inc.			1648	544	2192
1987	Abitibi-Price Inc.	27	288	1113		1428
1986	Abitibi-Price Inc.	35	338	773	389	1535
	Total	162	855	5476	958	7451

TABLE 39
REPAP MANITOBA
SITE PREPARATION 1986-1990

Year	Agency	HECTARES SITE PREPARED				
		Burn	Windrow	Mechanical	Herbicide	Total
1990	Repap Manitoba Inc.			3654		3654
1989	Repap Manitoba Inc.		50	2206		2256
1988	Manfor Ltd.			1648		1648
1987	Manfor Ltd.			2025		2025
1986	Manfor Ltd.		4	2014		2018
	Total	0	54	11547	0	11601

TABLE 40
TOTAL PROVINCIAL SITE PREPARATION 1986-1990

Year	Agency	HECTARES SITE PREPARED				
		Burn	Windrow	Mechanical	Herbicide	Total
1990	Province of Man.	0	0	8023	55	8078
1989	Province of Man.	100	279	5468	0	5847
1988	Province of Man.	0	0	5758	544	6302
1987	Province of Man.	27	288	5645	0	5960
1986	Province of Man.	35	342	6293	389	7059
	Total	162	909	31187	988	33246

TABLE 41
ABITIBI-PRICE INC.
SILVICULTURE SURVEYS 1986-1990

		FOREST REGENERATION SURVEYS				
Year	**Agency**	**Surveyed**	**S.R. Area***	**%SR**	**%NSR**	**Certified****
1990	Abitibi-Price Inc.	1734	849	49	51	849
1989	Abitibi-Price Inc.	2038	1488	73	27	661
1988	Abitibi-Price Inc.	1314	999	76	24	495
1987	Abitibi-Price Inc.	959	503	52.5	47.5	258
1986	Abitibi-Price Inc.	1226	692	56.4	43.6	
	Total	7271	4531	62.3	37.7	2263

* Satisfactorily regenerated to 1991 Reforestation Standards.
** Certified according to 75% Softwood Standard only.

TABLE 42
MANITOBA FORESTRY BRANCH
SILVICULTURE SURVEYS 1986-1990

Year	Agency	FOREST REGENERATION SURVEYS				
		Surveyed	S.R. Area*	%SR	%NSR	Certified**
1990	Forestry Branch	7447	5434	73	27	
1989	Forestry Branch	4186	2476	59.2	40.8	
1988	Forestry Branch	6341	4390	69.2	30.8	
1987	Forestry Branch	6351	4590	72.3	27.7	
1986	Forestry Branch	8620	6158	71.4	28.6	
	Total	32945	23048	70	30	

* Satisfactorily regenerated to 1991 Reforestation Standards.

TABLE 43
REPAP MANITOBA
SILVICULTURE SURVEYS 1986-1990

Year	Agency	FOREST REGENERATION SURVEYS				
		Surveyed	S.R. Area*	%SR	%NSR	Certified**
1990	Repap Manitoba Inc.	4752	3915	82.4	17.6	1995
1989	Repap Manitoba Inc.	4959	3347	67.5	32.5	2116
1988	Manfor Ltd.	5696	4427	77.7	22.3	2083
1987	Manfor Ltd.	2232	1986	89	11	705
1986	Manfor Ltd.					
	Total	17639	13675	77.5	22.5	6899

* Satisfactorily regenerated to 1991 Reforestation Standards.
** Certified according to 75% Softwood Standard only.

TABLE 44
TOTAL PROVINCIAL
SILVICULTURE SURVEYS 1986-1990

		FOREST REGENERATION SURVEYS				
Year	Agency	Surveyed	S.R. Area*	%SR	%NSR	Certified**
1990	Province of Man.	13933	10198	73.2	26.8	
1989	Province of Man.	11183	7311	65.4	34.6	
1988	Province of Man.	13351	9816	73.5	26.5	
1987	Province of Man.	9542	7079	74.2	25.8	
1986	Province of Man.	57855	41254	71.3	28.7	
	Total	57855	41254	71.3	28.7	

* Satisfactorily regenerated to 1991 Reforestation Standards.

TABLE 45
STOCK SHIPPED FROM PINELAND NURSERY AND CLEARWATER NURSERY 1986-1987 THROUGH 1990-1991: ALL STOCK TYPES

TO REGIONS AND FOREST COMPANIES

Species	1986	1987	1988	1989	1990
Jack Pine	1,852,829	3,596,127	5,751,805	3,582,922	2,102,390
Red Pine	382,025	707,850	1,061,325	986,464	812,135
Scots Pine	16,000	30,000	26,055	0	0
Black Spuce	5,199,980	5,460,010	5,797,895	5,792,468	6,416,948
White Spruce	1,339,136	3,610,429	3,520,429	2,918,785	3,509,445
Siberian Larch	8,955	0	0	0	0
Total	8,798,925	13,404,416	16,157,509	13,280,639	12,840,918

WOODLOTS AND CHRISTMAS TREE FARMS

Species	1986	1987	1988	1989	1990
Jack Pine	5,025	23,100	9,235	8,500	9,750
Red Pine	12,428	62,550	24,025	39,200	28,975
Scots Pine	70,130	202,622	186,278	164,825	172,075
Balsalm Fir	650	0	0	0	0
White Spruce	23,230	120,625	39,141	54,775	47,200
Siberian Larch	5,770	26,675	5,152	0	3,500
Total	117,233	435,572	263,831	267,300	261,500

OTHER (PARKS, MFA, SCHOOLS, NON-PROFIT ORGANIZATIONS, ETC.)

Species	1986	1987	1988	1989	1990
Jack Pine	1,608	2,600	205,200	19,250	3,536
Red Pine	100	0	2,000	9,900	0
Scots Pine	24,900	60,844	0	34,750	30,000
Black Spruce	0	600	0	0	26,260
White Spruce	4,000	0	41,068	87,376	83,975
Siberian Larch	5,025	5,000	0	3,000	2,000
Blue Spruce	0	0	0	0	20,800
Total	35,633	69,044	248,268	154,276	166,571
Total All	8,951,791	13,909,032	16,669,608	13,702,215	13,268,989

TABLE 46
STOCK SHIPPED FROM PRIVATE NURSERIES TO FOREST COMPANIES
1986-1987 THROUGH 1990-1991

Species	1986	1987	1988	1989	1990
White Spruce	1,350	0	0	0	0
Black Spuce	1,234,925	0	0	0	936,846
Total	1,236,275	0	0	0	936,846

TABLE 47
CONE COLLECTION AND SEED EXTRACTION
1986-1987 TO 1990-1991

Species	1986-87		1987-88		1988-89		1989-90		1990-91	
	Cones (Hl)	Seed (Kg)	Cones (Hl)	Seed (Kg)	Cones (Hl)	Seed (Kg)	Cones (Hl)	Seed (Kg)	Cones (Hl)	Seed (Kg)
Jack Pine	727.37	396.86	16.5	8.16	72.5	40.40	82.75	46.56	165.4	77.0
Red Pine	0	0.00	25.0	15.48	21.6	22.74	26.8	13.00	3.8	2.64
Scots Pine	55.4	50.70	0	0.00	0	0.00	1.5	1.34	21.0	19.10
White Pine	0	0.00	0	0.00	0	0.00	n/a	0.18	0	0.00
Black Spruce	137.65	44.74	187.71	31.86	273.49	113.74	69.5	19.08	128.41	62.10
White Spruce	2.4	1.80	533.78	774.44	80.55	115.36	19.8	16.44	2.3	0.46
Siberian Larch	0	0.00	1.7	4.30	0	0.00	0	0.00	0	0.00
White Cedar	0	0.00	0	0.00	0	0.00	1.2	1.54	0	0.00
Total	922.82	494.10	764.69	834.24	448.14	292.24	201.55	98.14	320.91	161.30

TABLE 48
SEED INVENTORY
AS OF APRIL 1

Species	1987	1988	1989	1990	1991
Jack Pine	05.84 Kg	319.04 Kg	327.04 Kg	297.48 Kg	336.92 Kg
Red Pine	94.86 Kg	84.68 Kg	81.10 Kg	93.08 Kg	72.58 Kg
Scots Pine	50.60 Kg	35.61 Kg	29.13 Kg	28.77 Kg	39.11 Kg
White Pine	0.30 Kg	0.30 Kg	0.30 Kg	0.48 Kg	0.48 Kg
Black Spuce	132.16 Kg	191.56 Kg	239.38 Kg	247.42 Kg	295.56 Kg
White Spruce	111.35 Kg	763.71 Kg	827.59 Kg	724.81 Kg	666.62 Kg
Colorado Spruce	0.16 Kg	0.16 Kg	0.12 Kg	0.62 Kg	0.50 Kg
Siberian Larch	0.00 Kg	2.30 Kg	2.06 Kg	1.86 Kg	1.86 Kg
White Cedar	0.00 Kg	0.00 Kg	0.00 Kg	1.54 Kg	1.54 Kg
Total	895.27 Kg	1397.36 Kg	1506.72 Kg	1396.06 Kg	1415.17 Kg